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EMOTIONAL FACTORS IN GENERAL MEDICINE.[1]

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THE emotional factor in the practice of internal medicine is an important one, and one that is not well understood by the general practitioner. When one speaks of the emotional factor, the average person is apt to think of someone who acts in an emotional manner. This, however, is not what is meant at all. The emotional factor is often unrecognized, not only by the patient but by the patient's closest associates. Only too often the people with real emotional problems seem outwardly calm, well poised and well balanced. Research in the field of psychosomatic relationships during the past quarter of a century has made this very clear.

I ask you to keep in mind the fact that the patients discussed in this paper were not considered neurotic in any way. They were just everyday people who were considered perfectly normal by everyone, as far as mental and emotional reactions were concerned. They were all sick people who had developed a chronic state of illness.

The essential problem in the development of chronic illness is one of lowered resistance, and the lowered resistance is due to a faulty energy balance. The role of the emotions in producing this energy imbalance is of the greatest importance.

The idea of chronic illness resulting from psychosomatic disturbance is not new to many of us; but to others it still seems such an exaggerated idea that it may be well to take up some of the factors which can be involved in the production of chronic organic disease from psychogenic conflicts.

[1] Read at a meeting of the Section of Neurology and Psychiatry of the Victorian Branch of the British Medical Association on May 29, 1939.

You are probably all familiar with the structure and functions of the autonomic nervous system, and I shall not take time to discuss it in detail. For the purpose of this presentation it is sufficient to remind you that the autonomic system is that system through which the involuntary processes of life are maintained and regulated, that it closely interacts with the endocrine glands, and that it is completely influenced by the emotions. As you probably remember, the autonomic nervous system is made up of two sets of fibres—the sympathetic, coming from the thoracic and upper lumbar segments, and now called the thoraco-lumbar division, and the parasympathetic, coming from the bulbar and sacral regions, now called the cranio-sacral division. When the fibres from both of these sets go to the same organ we have them acting antagonistically.

We know through the works of Cannon,[1] Crile,[2] Pottenger,[3][4] Kempf[5] and others that the autonomic nervous system, with its division into sympathetic and parasympathetic groups, is the system through which we maintain our existence—the system which regulates metabolism and the processes necessary to life, and the system through which the emotions, recognized or submerged, express themselves. It is, further, the system through continued unfavourable stimulation of which the various glands and viscera become irritated. These structures in turn send messages of complaint centralward in the guise of sensory afferent impulses, and, if the path travelled is over the sympathetics, then a reflex expression may manifest itself via the spinal nerves, with resulting sensory, motor and trophic changes in the skin, subcutaneous tissues and muscles; if, however, the sensory afferent impulse goes over the parasympathetic, then there may be a reflex expression in a functional disturbance of other internal viscera.

Eppinger and Hess[6] in 1909 produced their well-known work on vagatonia and sympathicotonia, and their research along this line was continued for a number of years.

Eppinger and Hess thought that the entire autonomic system was tonically stimulated and maintained a physiological balance which could be shifted toward either one or the other of the two divisions through abnormal functional conditions. They considered vagatonia a result of hyperactivity to parasympathetic stimulation, and sympathicotonia a result of hyperactivity to sympathetic stimulation.

Von Noorden, as early as 1892, called attention to certain clinical conditions which he referred to as vagus neurosis.

Pottenger has given an excellent description of the relationship between the autonomic balance and visceral disease in his book "The Symptoms of Visceral Disease".

We know that hormones produced by the adrenals and thyreoid stimulate the sympathetics; but in some instances adrenaline, which is a definite sympathetic stimulant, in very small doses causes a fall in blood pressure. Here again we have to take into consideration the role of the emotions.

So far there is no hormone available which is known to be primarily a parasympathetic stimulant.

From the point of view of physiological chemistry we must remember that the pH and the potassium-calcium ratio are serious considerations in the functional balance of the autonomic nervous system. Kraus, Zondek[7][8] and others have called attention to the importance of the acid-base balance in all disturbed conditions in which the autonomic system plays a part.

Following the work of Eppinger and Hess many studies appeared, chief among these being the works of Petren and Thorling.[9]

Each group of workers has found some exception to the generalizations of the other, and this is understandable only when one takes into consideration the point I wish to make, namely, the selectivity of certain emotions for certain divisions of the autonomic system. Only then can one realize why no cut and dried rule of response can be formulated at present.

We must keep in mind the fact that the body is a great colloid system made up of fluids of certain concentrations and trillions of cells whose constituent elements are basic protoplasmic substances and acid nuclear substances all surrounded by semi-permeable membranes and controlled by chemical and nerve energy. Anything which interferes with the normal concentration of body fluids is going to produce a medium which is either hypertonic or hypotonic. The difference in osmotic pressure will produce a disturbance in cellular function, which is the foundation for all metabolic change.

In 1922 Zondek called attention to some facts which have a great bearing on the subjects we are discussing. He pointed out that a diminution of the calcium concentration of the cell membrane occurred when cellular activity took place, and that this produced an increase in intracellular potassium concentration, an increase of the permeability of the cell, and a resulting hydration of the protoplasm of the cell. Increase in the calcium concentration of the cell membrane occurs in the presence of cellular inactivity. This is accompanied by decrease in the permeability of the cell and dehydration of its protoplasm.

Zondek further pointed out that these cellular changes might be initiated by nerve impulses, and showed that electrolytes influenced the autonomic fibres and that changes in the pH often brought about changes in the autonomic balance.

According to the work of Petersen and Levinson[10] it has been demonstrated that calcium is given off by the cell protoplasm and potassium is taken up during the stimulation of cells at the time of vasodilatation of the organ; to this process they have given the name of parasympathetic status. To the opposite situation of vasoconstriction, with

calcium retention and accumulation during cell rest, they have given the name of sympathetic status.

Parasympathetic status, then, means capillary dilatation, tissue activity, diminution of calcium concentration of the cell membrane, increase in permeability of the cell, increase in intracellular potassium concentration, calcium dissimilation and hydration.

Sympathetic status, on the other hand, implies vasoconstriction, tissue inactivity, increase in calcium concentration of the cell membrane, decrease in permeability of the cell, decrease in intracellular potassium concentration, calcium accumulation and dehydration.

Years ago Cannon showed us how some of the emotions produced the same results as certain drugs in effecting bodily changes. These results were the outcome of experimentally induced acute emotions in animals. Later, Ziegler and Levine[11] did a piece of work on basal metabolism, showing the influence of emotional reactions on the metabolic rate, using as subjects human beings suffering from psychoneuroses. These subjects of Ziegler were all apparently resting in bed at the time of the tests, and the blood pressure was estimated (i) before the stimulation with unpleasant and worrying ideas, (ii) during the period of meditation, and (iii) following cessation of meditation on the unpleasant ideas. As a result of the experiments of Ziegler and Levine we find that it has been clearly demonstrated that even though a patient is lying quietly in bed, he may not be resting in the least, though seemingly he is at ease and unaware of disturbing emotionally toned ideas. In some patients occupied with these autonomic stimulative ideas neither subjective nor objective emotional symptoms were recognized, yet the basal metabolic rate increased, indicating the insidious way in which submerged conflicts may dissipate energy. This suggests the complexity of the disease picture which may develop as a result of prolonged emotional conflict.

It is particularly important to keep the foregoing in mind, because of its relationship to many of the conditions found in internal medicine which develop in response to harmful stimulation through unrecognized chronic unfavourable emotions, such as worry, anxiety, resentment and the more intense reactions of fear and hate.

As you know, stimulation of the parasympathetics causes contraction of the pupil, increased secretory and motor activity of the stomach, contraction of the lower end of the intestine, slowing of the heart rate *et cetera*. On the other hand, the stimulation of the sympathetics causes dilatation of the pupil, inhibition of secretion and motility to the stomach; it relaxes the lower end of the intestines and accelerates the heart rate. Anything which paralyses one set will throw the autonomic system out of equilibrium. You all know well the reaction of atropine, which acts by paralysing the parasympathetic division, thus releasing an unchecked sympathetic impulse. Pilocarpine stimulates the parasympathetics, thus giving an overbalance of parasympathetic stimulatory reactions. Epinephrine reacts by stimulating the sympathetics, thus giving somewhat the same end-result as atropine, but for a very different reason: in one instance results are obtained by over-stimulation of one set of nerves over the others; in the other instance the opposing set is inhibited; the ordinarily balanced impulses thus have a free rein.

The point I wish to impress upon you is that unfavourable prolonged destructive emotions behave in the same manner as the various drugs which incite and inhibit the autonomic system, and in some cases work with a selectivity that is extraordinary. What the basis is for this selectivity I have not been able to determine so far; but I am positive that chronic states which are the result of submerged fear are very different from those chronic states which result from intensive submerged hate.

The most frequent chronic organic disturbances in which emotional conflicts will always be found to be present, even though not recognized, are the following: (i) chronic indigestion and hyperacidity, (ii) gastric ulcer and duodenal ulcer, (iii) colitis (spastic colitis indicates a more severe form of fear associated with resentment dealing with a real panic reaction), (iv) bronchial asthma, (v) chronic respiratory disturbances, (vi) chronic hyperthyreoidism, (vii) chronic headaches and the recurring migraine attacks.

It is necessary to keep in mind the fact that the emotional conflicts in these conditions may not be in the least apparent and that often the patient has no idea of their existence. And it must be remembered that an individual occupied with emotional-producing ideas of the fear-anger-hatred group, even though at rest physically and with few or no objective signs of disturbance, has an increased metabolic rate due to the result of autonomic disturbance. The pharmacodynamic influence of obsessive thought, repressed fear, hatred, shame, anger and guilt become manifestly important.

Reports of Cases.

The cases which will be cited are those of patients who had suffered for years from serious chronic conditions and yet had never been given an opportunity to have their emotional lives put in order, because the physicians and surgeons in charge of them had not considered that the emotional factor was of any consequence.

Case I.—A woman, past fifty years of age, had been ill for all of thirty years, and in spite of many handicaps had built up for herself an interesting career. This patient was referred for psychotherapy because she was not making a sufficiently satisfactory recovery from an operation for cancer, which she had undergone six months previously. Her physical condition was fairly satisfactory but she showed no interest in getting well. She had migraine and attacks of severe nausea and vomiting.

Her history showed that she had had many illnesses, starting when she was very young and continuing throughout life. Ever since she could remember she had had nausea associated with vomiting following the slightest

emotional upset; she had had violent migraine attacks since the age of five, had been operated upon for appendicitis, had had tuberculous adenitis, and finally had had a malignant growth of the ovary, which had been surgically removed.

The headaches were not associated with the attacks of nausea and vomiting. These headaches always lasted for forty-eight hours and frequently required morphine to relieve them.

The unravelling of the snarls from the unconscious of this patient is one of the most interesting pieces of work it has been my privilege to do. It took about two months to get all the unconscious trends, motives and conflicts arranged in a nice orderly fashion, and then after that reorganization began.

A number of intensely terrifying experiences were evoked, which had been buried for over forty years. The bringing to light of these deeply hidden fears released a great surge of energy. The second group of conflicts brought to the surface were ideas associated with shame and humiliation. These began with the fourth or fifth year; the straight fear reactions unassociated with shame went back to the second year. The next group of conflicts to be unearthed were those dealing with jealousy, resentment and resistance. These again were not surface reactions, but were very well buried. Anyone who had known the patient probably would have been much surprised to learn that these characteristics existed at all. The conflicts and their influence on the development of the personality, as well as the further influence they had in keeping down the resistance of the individual, were carefully traced.

At the end of the analytical work the reorganizing processes were begun and carried on through the means of constructive relaxation. It was interesting to note that the patient reached the point where she was completely able to avert all of the headaches and also to forestall the development of the periods of nausea and vomiting. She began to gain in weight, the extreme lassitude from which she had been suffering left her, and the internist who was carefully checking her progress throughout the analytical proceeding reported an almost incredible change in her.

It was of special interest that the patient herself in this case traced out the relationship between the emotional conflicts and the way that these conflicts had become focused through the sympathetic imbalance on certain organs.

CASE II.—A young woman, aged thirty-nine years, had had chronic inflammation of the throat, with frequent severe colds and colitis, extending over a period of twenty years. She had been told that she had very low resistance and that was why she could not throw off the chronic conditions.

Nobody considered the patient nervous or emotionally tense. Under analysis many unknown fears and resentments were unearthed, going back to the sixth, fifth and fourth years. The throat trouble was found to be a response to a submerged panic made up of assorted tangled fears and anxieties. The colitis was a later expression of the same panic associated with resentments against the patient's brothers. As she gradually became aware of all of the component parts of the panic patterns the colds began to subside, the hoarseness and inflammation cleared up, and for the first time in twenty years the colitis disappeared entirely. What had happened was that in the clearing up of the various conflicts a tremendous amount of energy was released, the sympathetic-parasympathetic balance was regained, and the resistance of the patient was very rapidly built up; through this she was able to throw off the chronic illness.

The chief underlying fear was a fear of death by violence to the throat. The patient's first knowledge of death came at the age of five, when she saw a chicken's head cut off and was horrified at the way it flopped headlessly over the yard. Someone told her that was death, and she got the idea that that was what happened to people when they died. Shortly after this concept of death a workman about the place murdered his sweetheart, and in the middle of the night, when the little girl was in bed, a posse of police chased him through the garden and shot at him. Both of these incidents going back to the sixth and fifth years had been completely wiped out from her conscious memory. Many other phantasies became connected with this original one, so that there were any number of stimuli which could produce the physical symptoms.

You may perhaps wonder what the association between the throat and the stomach could be. Following the patient's ideas regarding death in her fifth and sixth years, she got an idea with regard to childbirth from another little girl. This little girl told her that when you wanted to have a baby you put a tomato in your throat and poked it down with a stick and then after a while you gave it another poke and it went down and then you poked the umbilicus and out came a baby. It was very difficult to get at these very deeply submerged ideas; but the tie-up between them was so important that it was not until all of these ideas which were associated together were cleared up that the patient became perfectly free from the physical distress.

CASE III.—A young man had had gastric ulcer and colitis with periods of extreme exhaustion in which he was unable to go on with his work. He had tried everything, and though his condition would improve for a time he invariably slumped back when he got into a situation which demanded a great deal of concentrated effort and threatened him with too much responsibility. When his entire life was reviewed it was found that he had been emotionally very closely attached to his mother, and that periodically he had resented the attachment very deeply, but that invariably he was pulled back again into the same situation. He had developed a chronic state of anxiety, which, while it was not shown in his ordinary behaviour, reacted through the autonomic nervous system to produce the gastric symptoms; these *plus* the exhaustion were the only expression of the emotional upset. All of his friends considered him well balanced emotionally, very studious, earnest and an excellent companion socially. We were able to locate many fears and eventually a great deal of resentment, and a tremendous sense of frustration and of futility in regard to life in general. He overcame all his physical symptoms, gained in weight and developed a very definite access of energy which enabled him to do his work without becoming exhausted. This young man is now happily married and has two healthy little children.

CASE IV.—A woman, about forty-five years of age, when I first saw her had been in bed for several months with a heart disorder. It was imperative that she be got out of bed as soon as possible, because she was earning a living not only for herself but for her husband and child. She was in a complete state of panic over having to remain in bed, and was more than anxious to see whether or not there might be an emotional background for her disturbance. As a child she had had chronic bronchitis. After her marriage and the birth of a child a chronic genito-urinary disturbance had developed, which had necessitated surgical removal of the uterus. Following this she suffered from a chronic gastro-intestinal irritation, which from chronic hyperacidity developed into a gastric ulcer and severe spastic colitis. On top of the gastro-intestinal distress she developed a very rapid heart rate and a loud cardiac murmur, and was then considered to be incapacitated.

I cannot take the time to go into all the details of this case; but suffice it to say that the patient had been in a condition of emotional stress and strain from the time she was a small child. There

had always been unhappy home conditions, domination by a disagreeable, brutal aunt, poverty always, and in her married life a recapitulation of the unhappy home conditions of her childhood. The financial worry was a tremendous one, and when I saw her she was responsible not only for herself but for her immediate family. She never admitted worrying, and everyone who came in contact with her said they never had seen such optimism and cheerfulness. It took two months of very hard work to bring this patient to a realization of what was really the matter with her and to get her to face openly the tragedy of her life. When she learned to do this she became a very different person. She was able to continue her work, and has done so with great success during the past fourteen years. However, when she gets into too great financial stress even now the gastro-intestinal disturbance recurs. She said later that often the first indication she had that she was really worrying was when she began suffering from hyperacidity.

CASE V.—The case I am going to describe now is interesting because the patient, a boy, aged nine and a half years, was the son of a physician, and because everything had been done for the child from the physical standpoint. He had been taken to metabolic clinics and he had been radiologically examined from top to bottom; he had had blood counts, blood sugar estimations and Wassermann tests of the blood; he had been measured and weighed and placed on the proper number of calories and vitamins. He had been thoroughly studied.

This boy had been having spells of unconsciousness for six years, and these spells had become so alarming that he was taken away from school. He would often remain unconscious for several hours, and when he recovered he would be very nauseated and dizzy. He had a very poor appetite; he slept indifferently; he had pronounced gastric hyperacidity and recurring attacks of diarrhœa. The boy was a musical prodigy, and the whole family had worried for fear his career would be interfered with.

When I first saw him he was nine years and six months old. He was very advanced mentally and took a keen interest in giving his own history. He was the son of a quite young mother and a very much older father. Both parents were well educated. The mother was the youngest child of a very repressed family. She was so anxious for her child to be perfect that she would not allow him to associate much with other boys because of their rough language and habits. The patient was three and a half years of age when his brother was born. This second little boy was healthy from the beginning and was absolutely not a prodigy in any way.

The mother had assured me that the patient was a very calm unexcited child, that she did not think he was emotional, and that she was quite sure he had no worries. He told me that he was afraid of things he did not know about, of strange sounds, of the dark, of reading about murders, of suspicious-looking people (tramps), of failure.

He said: "I worry about whether I'm going to be sick. I worry when I go to bed at night whether I'll feel well in the morning; I worry about getting sleepy in the day-time; I worry because things don't seem real and everything gets misty at times. I used to worry and still do, but to a small extent, that my classmates will tease me about something at school. I worry that something might happen to our cats while we are gone. I worry that I might have to have an operation and take an anæsthetic, a thing I dread more than anything else. My father has heart trouble and I worry that he will have a heart attack some day. I worry in traffic; I worry in heavy traffic very much when I am in an automobile. I worry when I am going to play in public for fear that I shall forget part of the music or make an error of some kind."

Under fears he listed fear of burglars, fear of doing athletics in which his head hung down, and fear of the house burning up.

Under pet imaginations he gave the following: "I imagine all the things that I would wish for if there was magic and I were a magician. I imagine what I would do if I heard that the sun was going to blow up soon. I imagine what I would do if I were shipwrecked or otherwise cast upon a desert isle all alone. I imagine what I would do if I had to make my own living."

The patient realized that hard work made him worse, "especially disagreeable work", as he said.

He had frequent nightmares, some of the recurring type. He both talked and walked in his sleep. One night he woke up and found himself in his brother's crib.

When asked what things hurt his feelings, he said: "When someone says an unnecessary cross word to me. When someone pretends to do me a favour and plays a bad joke on me instead. When someone won't listen to my side of an argument. When I hurt myself and someone won't pay any attention to me, but just says 'Oh, that doesn't hurt, stop the fuss'." "Someone", it transpired, was his mother.

This case was a fairly simple one. The fact that the spells came on shortly after the advent of the little brother gave the first clue. The piece of phantasy about the sun blowing up was the second. He said he always had a mixed feeling of pleasure and guilt about that. The walking in his sleep and usurping of the baby's crib were the third clue.

When the child was told that it was rather interesting that the spells seemed to develop just after his brother had come, and that apparently he had taken the idea of being supplanted very hard, he looked very thoughtful and said: "You mean I have been cutting off my nose to spite my face." I asked what he thought, and he said: "Just watch me pull out of this nonsense."

He went back over his own history and picked out the behaviour which he recognized as an attempt to gain attention, and asked to have any other points which he had missed shown to him. He thoroughly understood that he had felt his supremacy threatened, and said: "Well, for the first time I believe I'll be able to treat Jack normally. I have either been too kind to him or I have been sarcastic because I knew that would hurt him. I wouldn't have admitted it before, but I've practically always hated Jack and that's rather rotten of me, because he's never done anything to me."

This child within the next six months after his return home regained his health, lost his nightmares and fears, let go of his worries, entirely recovered from his spells of unconsciousness, and began to take a very real interest in his brother. That was fourteen years ago. Today he is one of our most brilliant young musicians, and a very healthy and normal young man.

CASE VI.—With regard to asthma, I might cite the case of a woman, aged about fifty years, who for over thirty years had been suffering from particularly severe asthma. She had had the help and advice of some of the best internists both east and west, but was unable to get more than temporary relief at any time. Several years ago she was referred to me by her physician, who said: "I do not think there could be any emotional basis for this difficulty, but in the past thirty years every other field has been investigated but that one. She has nearly died during several attacks. She is so worth while that anything that could be done to help her would be appreciated not only by me but by all her family. Please interview her and let me know what you think."

After my first conference I called the physician, who was a conservative internist, and told him frankly that I felt the whole difficulty was purely emotional; and so the patient was transferred to me to be studied. It took three weeks to change that severe asthma to a hard cough, three weeks more to change it to a loose cough, and at the end of six weeks the respiratory distress had

entirely disappeared—after thirty years. Of course, during all these years real change has occurred in pulmonary tissue; but now, with the exception of an unstrained clearing out of the lungs in the morning, there is absolutely no respiratory or pulmonary difficulty, except when the patient begins to worry over financial conditions, at which time she starts to wheeze and to have difficulty in breathing again.

And what was the trouble? A chronic submerged emotional distress, totally unrecognized by the patient, which has been operating ever since she was a child. This anxiety was based on financial strain. She was the oldest in the family, and her earliest associations were with lack of money and the necessity of the parents to maintain a certain social standard. As she grew older she had to give up many cherished ambitions in order to conserve finances, and at the age of sixteen she was assuming family responsibilities of many kinds. At the age of eighteen a financial crisis arose and her respiratory disorder dated from that period. The analysis brought to light many hidden resentments over frustrated plans and many disguised fears of eventual financial disaster. Consciously she was courageous, gay, happy and contented. During the day, while she was distracted and interested in her work, which she loved, she was fairly free from respiratory distress; but at night, when all the difficulties of the past and the future loomed up, she reacted with terrific attacks of asthma. This patient developed a wonderful insight into her emotional life, and with redirection into constructive channels and outlets of the energy released when the buried conflicts were unearthed she became a truly happy and totally different person. She gained in weight and remarkably in vitality and endurance.

The interesting thing about this case is that the patient was quite unaware of the nature of her conflict; in fact, when she started out she felt that she did not worry about financial matters at all.

The next history is that of a series of attacks of migraine, and again we are dealing with a medical family.

CASE VII.—The father, a highly thought of internist, first sent me a young son, aged nine years, who was giving some difficulty. Then he sent me a second son of the adolescent period who was day-dreaming too much and who seemed very unhappy. Finally he said he thought his wife was responsible, because she was depressed so often and cried so much.

When I had finished talking to the wife I sent for my colleague and told him I had discovered what was the matter with his family. It was he himself and not the others who were at fault. He was highly insulted and alibied himself valiantly; but I told him I had heard from each of the others of his recurrent attacks of migraine, when the whole household had to go on tip-toe because he could not stand noises or jars of any kind. I told him I knew how unreasonable and domineering he was during those attacks. I told him quite frankly that I thought he used the headaches (unconsciously, of course) for two purposes: (i) a sadistic outlet to make the other members of the family miserable, and (ii) to have an excuse for taking morphine.

That did make him wild; and he said he would prove that there was no submerged emotional disturbance and that his headaches were entirely physical. So the study began.

He was very resistive and scornful and very English in his assumed superiority, until we reached a memory which had caused a real emotional crisis, and he began to realize the significance of submerged emotional reactions. He remembered that on an occasion when he was ten years old a cousin came on a visit. This cousin was taller, better looking, stronger and more aggressive than the patient. His mother was very fond of this nephew and made much of him; this caused the patient to become very jealous, resentful and hostile. The mother presented the nephew with a green tie which the patient had coveted for some time.

When the nephew found that his cousin was sulking he accused him of being jealous and a fight ensued, in which the patient was knocked over the head and vanquished. He was enraged, humiliated, jealous, resentful and revengeful, and he felt that he had been very unfairly treated. He also felt the loss of supremacy, he felt supplanted, and he felt very sorry for himself and very annoyed with everyone else. The headaches for a period of forty years had occurred on the side of the head which had been hit in that fight with his cousin. The disagreeable incident was forgotten; but afterwards any resentment *plus* even one of the other reactions would be enough to precipitate a headache, to illustrate resentment *plus* humiliation, resentment *plus* anger, resentment *plus* jealousy.

This patient was taught to be on guard for all feelings of hatred, anger, resentment and jealousy, and to recognize them as they appeared. On the other hand, as soon as a suspicion of a pain appeared he went over the day's happening to see what had occurred that presented difficulties. If, however, he allowed the headaches to develop to the throbbing stage he could not stop them.

This patient progressed remarkably well for five years, during which period the family had a breathing spell and got along beautifully. Then the depression hit the United States of America and the patient lost all his money. He began to worry, to be resentful again, and in a flash the headaches were back. He returned to the use of morphine and would not attempt to pull himself out of his emotional slump.

Just about this time, the eldest son, whom I did not know, graduated from medical school, and after his internship settled down to practise. One day he appeared in the office and said: "You've had all the rest of us for patients, so you might as well have me too." He went on to describe how he was developing migraine attacks, which were becoming more and more frequent, and how these attacks were beginning to last longer. He also had severe attacks of colitis.

He said he had no intention of repeating his father's behaviour, and he absolutely made up his mind that he had to work out the emotional basis. He was a very earnest and very cooperative student, and he responded instantly to the technique of free association. We found the same set of reactions operating—jealousy, resentment, anger, guilt, feeling of discrimination *et cetera*. The resentment was directed chiefly against two people—the father and the second son. The patient resented his father for his domineering, sneering attitude, and because he had always had to keep quiet as a child when his father had attacks of migraine. He also resented his father's attitude toward his mother. He resented the second son because he felt himself supplanted and because, as he said, he had always felt dethroned from his supremacy as an only child.

This young physician had been exposed to the modern ideas of psychiatry in his medical school, so that it was much easier for him to gain access to his unconscious ideas than it had been for his father. He was such a good student that he entirely got rid of his headaches and his colitis.

The chief triumph of this case was the sequel. This young doctor, who is specializing in internal medicine, is now on the look-out for the emotional factors in his cases, and he is engaging in a remarkably successful practice. Recently he had as a patient an adolescent girl who had had migraine of two years' duration. It was simply magnificent to see how he handled that case and how he achieved a cure for this girl, treating the problem entirely as an emotional one.

Incidentally the whole family has been really successful; the youngest son has become adjusted very

well. He left home very young, made his own way, and said that he had no intention of putting up with his father's "tantrums", as he called the headaches. The second son, who was forced to go to medical school, and who was an out-and-out dreamer and an artist, finally went to an art school after it had been successfully demonstrated that he was incapable of doing scientific work. He is now well recognized in his line of work. All three boys are married, are quite successfully emancipated from the paternal domination, and are thoroughly useful citizens.

Discussion.

In speaking of migraine, Gordon[13] comments on the fact that "it is a sort of revelation of the obvious" that migraine is a disturbance of the autonomic nervous system.

Slight[14] agrees to the imbalance of the autonomic system and adds the emotional element to the causative factors. He also adds that the sensory phenomena of migraine are undoubtedly associated with a direct increase in the activity of the sensory nervous centres, and stresses the fact that the emotional factors involved are often not elicited by direct inquiry because the patient may not be wholly aware of them himself.

In his excellent study of fifty unselected cases of migraine Slight summarizes several of his points at the end of the paper as follows:

> Migraine is seen as a process of nervous discharge affecting the autonomic and sensory centres, with a blocking of pathways leading to coordinated expressive action, motor, mental or emotional. The preceding phase of increased tension involves two factors: (*a*) excitation of centres subserving emotion, (*b*) blocking of discharge pathways until the tension reaches an overflow point. This imbalance is determined by an emotional organization due essentially to the experiences of early life operating in an individual with certain constitutional tendencies.

Slight divides the migraines into early migraines and late migraines. He feels that the early migraines are associated with early emotional disturbances and that they are accompanied by certain definite hostility components, such as a sense of severe frustration *plus* a feeling of intense resentment to authority and to conditions which interfere with the patients' wishes. These people develop over-compensatory socially acceptable characteristics, so that they appear full of good works, highly conscientious and considerate, and they do these things, not to be hypocritical but in order to prevent the outward manifestation of anger, resentment, hostility and jealousy.

Slight considers that the onset in those cases which do not develop until adult life can be traced to a given situation which has caused a definite alteration in the life pattern of the patient. The cases of later onset are associated with frustration, loss of security, resentment and guilt, as well as many other characteristics which may not be always constant. Slight holds that the severity of the headache is the expression of effort to control the nervous discharge.

As to the factor of fatigue and work in migraine, Slight believes that if the emotional components can be cleared away so that there is no blocking of the psychomotor discharge as a result of the existing tension, then headaches will not result from overwork. He states that in several of his cases of migraine the main cause seemed to be due to mental work and fatigue, but after emotional readjustment had been attained the same amount of fatigue and mental work did not result in attacks of migraine.

As to the possibility that primary endocrine imbalance may cause the attacks, it is considered very questionable whether hormonal changes could be directly responsible. It is more probable that they operate by changing the level of nervous excitability, this in turn intensifying the emotional conflicts of the type we have just been discussing.

Slight holds that treatment may follow two forms: (*a*) either a change in the life habits of the individual and the setting up of such new conditions as will avoid emotional conflict, or (*b*) readjustment of the personality so that the pattern of behaviour responsible for the attacks is unravelled. In all cases he feels that the treatment should be begun early, before irreversible reactions have occurred and before the life patterns have become fixed.

My own feeling is that the taking of drugs is one of the most difficult situations to combat, because of the dependence the patient acquires on the sense of security which the drug gives. For this reason, if for no other, the early treatment in the early cases is to be stressed most seriously.

I think that these points were well demonstrated in the cases of the physicians I have mentioned. In the first case the life pattern was too well established and had existed over too many years. The patient did not willingly face his problems, nor did he willingly give up his prop of drug-taking. He himself admitted that he had been a very bad patient and that he realized that the recurrence of the symptoms after several years of freedom from them was due to his own failure to follow through the routine of behaviour which had been prescribed.

The son, who had had his attacks for only a comparatively short time, who had himself asked for help, and who had cooperated perfectly in the study, got complete relief and has been able to avert all possible headaches the moment the slightest head discomfort appears.

In the case of his patient, the adolescent girl, it was a very simple matter to get the situation under control, because the emotional factor was a rather obvious one, which was easily readjusted through the cooperation of both the parents and the child.

Of the modern workers on psychosomatic disturbances, H. Flanders Dunbar,[15][16][17][18] Theodore Wolfe and their group are doing the most consistent research.

Dunbar states:

> The detection and relief of conflicts and anxiety is one of the major problems of convalescence and of utmost importance in preventing relapses and invalidism. Furthermore, the emotional element is important in patients who are not obviously neurotic.

Dunbar has found that patients with cardiovascular diseases and those with diabetes were found with great frequency to have states of anxiety, and that when these anxiety states were eliminated the patient began to show much more rapid improvement.

In hypertension the picture was that of submerged hostile impulses (based more on hate than on fear), while in cardiac cases without hypertension there was an uncomplicated anxiety neurosis.

These are merely a few of the conditions which are met with in general practice and which should give the internist something to think about.

Conclusions.

In conclusion, may I recapitulate some of the points I have stressed:

1. The patient with chronic illness is a person who is not getting well because the bodily resistance to disease is lowered. This lowering of resistance is due to an energy imbalance, which is the result of a disturbance of the balance of the sympathetic-parasympathetic functions.

2. This imbalance of the two divisions of the autonomic nervous system can be produced by chemical changes or by continuous submerged emotional factors.

3. The moment that there is an energy imbalance and the reserve energy is encroached on, then a resulting physiological imbalance develops, and with that a lowered resistance for some organic system.

4. In the presence of this lowered resistance the pathological factor gets a chance to work, whether it be toxin, bacillus, coccus or virus. This is well illustrated in the cases of chronic tuberculosis, of which for years I made an exhaustive study.[19][20] In each of these cases there was a great energy imbalance, and when the pent-up energy was freed so that a correct balance was established, the patient's lesions were able to heal.

5. Because you cannot elicit any admission from the patient that he or she is worrying or is resentful, do not dismiss the idea that something may be wrong.[21] I am stressing this because so many of my colleagues have said to me: "But I've asked the patient over and over if she worries or if she is fearing anything and she insists she isn't, so I'm sure there can't be any disturbance of this kind." It is just about as consistent to take the patient's word for this sort of difficulty as it is to accept her word that she has not typhoid fever when you know she has, or that she has not appendicitis when you know that her appendix is about to rupture.

6. The study of the psychosomatic responses is one of the most fascinating problems in general medicine today, and the reports of the ever-increasing research in this field are well worth reading.

7. The mental attitude and the emotional state of every sick person are important, no matter what the disease or its cause.

8. It is only by treating the individual as a whole that we can expect to accomplish the maximum of benefit for the patient. We cannot treat the disease and forget the person who has that disease.

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A REVIEW OF ONE HUNDRED AND TWENTY CASES OF BRONCHIECTASIS IN CHILDREN IN NEW SOUTH WALES.

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A SERIES of cases of bronchiectasis from the in-patients' records of the Royal Alexandra Hospital for Children over a period of twenty years (1918 to 1938) was selected for study with the following

objects: (i) to study the clinical picture of the disease and its possible ætiology; (ii) to deduce the prognosis of bronchiectasis in this country; (iii) to evaluate medical methods of treatment, including the use of preventive measures; (iv) to judge whether major surgical procedures are justifiable in the treatment of this disease in children.

The Clinical Picture of the Disease.

The investigation began with the examination of 120 case histories, and an attempt to trace the patients was successful in 56 cases. Allowance was made for the incompleteness of the records, and an endeavour was made to avoid the drawing of conclusions where insufficient evidence was available. A fairly accurate picture of the "typical case" may nevertheless be deduced from a series of this size.

Age Incidence.

The average age of patients on first admission to hospital for bronchiectasis was seven years, the commonest age being eight. The stated duration of symptoms varied from one week or less to ten years before admission to hospital, the commonest being one to two years. In seven cases reference was made to symptoms dating from birth. Patients have been discharged with a diagnosis of bronchiectasis at the age of two years.

Sex Incidence.

The proportion of females to males was 74 to 46. This is in contrast with Boyd's[1] series of 56 patients, wherein 27 were males and 29 were females, and Findlay and Graham's[2] series, in which 10 were males and 13 females.

Distribution.

It was found that 34% of the patients lived more or less permanently in inland country districts. With regard to the patients traced, there was no indication that the standard of housing or nutrition was unsatisfactory.

Symptomatology.

Cough.—All patients admitted to hospital were suffering from cough, and in 38 cases this was specifically stated to be severe. Armand Delille[2] (quoted by Findlay and Graham) groups patients into (i) those with typical symptoms of bronchiectasis, and (ii) those with symptoms of bronchitis or with recurrent colds, or perhaps with no symptoms at all, in which case the condition was discovered by radiographic investigation. In his opinion most of the cases in childhood belong to the second group.

Sputum.—It is difficult to assess the true frequency of sputum, as the history is often indefinite in the case of infants. However, it was recorded as having been present in 49 out of the 120 cases, and in 35 was mentioned as being copious. The presence of fœtor of the sputum was not often stressed; but the unreliability of even one's friends in this regard is widely accepted!

Hæmoptysis.—Hæmoptysis occurred in five cases. Febrile attacks, anorexia, loss of weight and night sweats did not appear prominently as symptoms in the case records.

Physical Signs.

The general appearance of the patients examined did not suggest chronic ill health. In many instances the children themselves stated that they generally looked and felt well, and this was confirmed by the parents. This was noticed by Findlay and Graham,[2] who remarked on their "wonderfully healthy appearance and colour". Boyd,[1] on the contrary, found "the general health usually seriously impaired". Clubbing of the fingers was mentioned only six times in the whole series.

Bacteriology.

As is customary in connexion with this disease, bacteriological findings were complex and incomplete, and sputum tests had been carried out in 35 cases only. Streptococci were recorded in 20 cases, which, in view of the above, indicates their frequent presence. Raia,[3] at the Bellevue Hospital, New York, found hæmolytic streptococci in 50% of her series. It might be possible to draw some useful conclusion from sputum tests if they were carried out in a large series of cases and recorded as fully as possible, but their main value lies in the exclusion of tuberculous infection.

Radiographic Findings in the Lungs.

It must be noted that this series extends back farther than 1922, when the routine use of the introduction of iodized oils into the bronchial tree was pioneered by Sicard and Forestier. Positive X ray evidence of bronchial dilatation in the honorary radiologists' reports, however, may be regarded as significant. The reports showed that 34 patients had pronounced or extensive bronchiectasis involving both lungs; 18 had early or suggestive lesions of both sides. Thus 43·3% had a bilateral lesion. The distribution of the unilateral lesions was found to differ from that in other recorded series. The lobar distribution is shown in Table I.

TABLE I.

The Lobar Distribution.

Source of Information.	Base of Left Lung.	Base of Right Lung.	Bilateral Cavities.	Right Middle or Upper Lobe.
Boyd's series of 27 patients with demonstrable cavities	15	6	6	—
Findlay and Graham's 23 cases	14	4	5	—
Raia	16	8	7	10
Royal Alexandra Hospital for Children, 93 X ray reports	18	15	52	6

It may be that our series suffered in accuracy from the fact that all patients were not investigated with the help of lipiodol, or that the patients may have been at a later stage of the disease, or that the disease may take a different form in this country. It is quite likely that none of the series is large enough to allow a scientifically accurate conclusion to be drawn.

Ætiology.

Interrogation of the parents of 30 patients showed that the children had been born at term and the confinements had been normal. No information was obtainable in regard to the presence or method of treatment of *asphyxia neonatorum*. The early feeding of the children had been satisfactory to the extent that most had been breast fed and had received extra vitamin *D* in apparently sufficient amounts. All the patients were treated in the public division of the hospital, though they were not noticeably of the poorest class.

No history of maternal or paternal pulmonary tuberculosis was obtained, though five patients had a doubtful history of contact with relatives suffering from the disease. There was no family history of rheumatoid arthritis, asthma or urticaria; but in five instances one parent suffered from hay fever and in two from chronic bronchitis.

The cause of bronchiectasis is not known, and research workers have been most severely handicapped by the inability to state the exact time of onset of the disease. For this reason the many disturbances which precede or accompany the disease may be cited only as predisposing and not causative. However, one is compelled to attach weight to statements of parents indicating that the symptoms seemed to date from a particular time.

It is convenient to use Watson and Kibler's[5] classification of the cases on an ætiological basis into (i) congenital, (ii) mechanical, (iii) allergic. It must be noted that the only basis for this classification, as far as group (i) is concerned, is the number of patients who have symptoms dating from birth or early infancy.

Congenital Factors.

Some factors have been indicted as causative, and attempts made to correlate known histological changes with them. Some observers indicate that there may be a congenital defect upon which the condition becomes superimposed.[4] If it is agreed that obstruction plays an essential part in the development of bronchiectasis, the only congenital deformity which will lead directly to the disease is probably a congenital stenosis of the bronchi. According to some, atelectasis is included as a congenital factor; but an atelectasis could arise from a pulmonary infection in early life. Péhu and Guimet[4] do not think that atelectasis alone can cause a bronchial dilatation. Hutinel[4] distinguishes two definite types of bronchiectasis: (*a*) that with ampullary dilatations, which is congenital or due to syphilis, and (*b*) that with cylindrical dilatations which follows severe or prolonged bronchopulmonary affections.

It may be significant that numerous and varied concomitant deformities have been noted in patients suffering from bronchiectasis. In our series of 120 cases there were noted one case each of atelectasis, congenital cyst of the lung, congenital heart disease, dextrocardia and Klippel-Feil syndrome.

Mechanical Factors.

Whereas Chevalier Jackson[4] stresses the role of foreign bodies in the bronchi, Péhu and Guimet do not think this at all a common cause. In Findlay and Graham's[2] series there was no instance of inhalation of a foreign body; and in our series one child developed symptoms two weeks after tonsillectomy and one had radiographic evidence suggestive of a foreign body in the right lung. In contrast with these findings are those of pulmonary abscess where a different picture obtains; Clerf[6] states that in 172 cases of suppurative disease of the lung referred to the bronchoscopic clinic at the Jefferson Hospital, 70% followed some sort of surgical procedure, and in 50% of those the surgical procedure was tonsillectomy. If one continues to use Kibler's classification, it might be possible to include what is sometimes alluded to as the "infectious group" in his second group (mechanical). This inclusion of the infectious group with the mechanical is not in accord with the statement made by Lee Lander and Davidson,[7] that mechanical factors play by far the most important, if not the sole part, in the production of bronchial dilatation, the role of infection being secondary and by no means inevitable. It would appear that the infectious fevers, especially those contracted in the first few years of life, probably play the most important part in the causation of bronchiectasis, though in what manner is not understood. The mechanical explanation of these cases may depend on an obstruction caused by inspissated secretions in a bronchial system so impaired as to be unable to expel them, or on damage to the walls, which may lead to obstruction from fibrosis.

In 1837 Stokes, of Dublin (quoted in a paper by Findlay and Graham[2]), believed that loss of elasticity, contractility and ciliary movements were the important factors in the ætiology of bronchiectasis, and that in all cases the starting point was bronchitis. It is interesting to compare the findings in the histology of the lungs of mice that have been experimentally infected with *Hæmophilus pertussis*.[8] The regular arrangement of the cilia-bearing surface of the bronchioles is lost. There are wedge-shaped gaps between the cells. In autopsies on patients who died from bronchiectasis at the Royal Alexandra Hospital for Children a common finding was erosion of the walls of bronchi and bronchioles, and interstitial fibrosis. It may be that in pertussis several of these factors are acting simultaneously. The ciliary action is disorganized by destruction and the toxicity of the infection, and the numerous bacilli, entangled in

mucus, act as a source of irritation, causing the paroxysmal cough.[8] This may be preliminary to bronchial dilatation, though Findlay and Graham[2] think it is more probable that the cough results from the bronchiectasis than the bronchiectasis from the cough. It is possible that in a patient suffering from pertussis and possibly exhibiting the changes referred to above (erosion of the bronchi and obstruction from inspissated mucus), and having a paroxysmal cough, all the conditions necessary for the early development of bronchiectasis are present. This may be the stage at which the disease tends to progress towards recovery if the aggravating factors are removed. It is probably at the later stage, when the cavities become relined by flattened epithelium, that anatomical recovery is impossible.[9]

It is suggested, therefore, that in this series pertussis *per se* played a large part in the causation of the disease. The observations of Findlay and Graham,[2] Boyd[1] and Raia[3] do not appear to coincide with this view, as can be seen from Table II, which indicates the alleged cause of the disease in those cases in which a causative factor was specifically mentioned. This may be accounted for by the unrecognized presence of a predisposing factor, for example bronchopneumonia in association with pertussis, or by the fact that some communities may be exposed more frequently to a particular damaging pulmonary disease.

It seems significant that of the 36 cases in which the symptoms were stated to date from a specific point, 47·2% were put down to pertussis.

Allergic Factors.

Allergy and infection of the upper part of the respiratory tract appear to be important factors in the initiation and maintenance of the disease, though to what extent is not known. Signs of infection of the accessory nasal sinuses were present in 47 out of the 52 cases recorded as having been investigated from this standpoint. The frequent association of sinusitis and otitis with pneumonia is shown by Ebbs[10] in a series of 200 autopsies on children who had died of pneumonia; 42·5% had infected sinuses, 66·5% infected ears, and 80% had infected sinuses or infected ears or both. The significance of these figures loses some of its value when applied to the present series, since it has been shown that pneumonia did not appear to be a common "causative factor". In three cases of our series there was a history of hay fever and rhinitis, and a doubtful history of hay fever in two cases. These patients lived in the country. In several others, symptoms of bronchiectasis were said to be more pronounced in hot weather and a dry climate.

Kibler[5] has very definite views on the part played by these factors, and is rather optimistic about treatment directed towards their eradication. He states that the fundamental basis for recurrent or chronic sinusitis is commonly an allergic rhinitis. As previously mentioned, he divided all bronchiectatics into the three groups, congenital, mechanical and allergic, and found that 90% of those coming under his observations were of the last mentioned type. He holds that bronchiectasis may often be successfully combated in its early stages, if it is considered a sequel of allergic bronchitis. The result of the present investigation does not seem to justify such an optimistic outlook. There is as yet no true evidence of the part played by infection of the upper part of the respiratory tract, and the position appears to be that stated by Péhu and Guimet,[4] namely, that sinusitis plays the same part as bronchopneumonia, in that it may activate a previous bronchiectasis or be activated by the presence of bronchiectasis.

Other Factors.

No conclusions could be drawn from the frequent occurrence of septic teeth and tonsils; unfortunately, almost all children admitted to the public wards of the Royal Alexandra Hospital for Children have teeth which require attention, and with regard to the tonsils the records were not sufficiently detailed to be of value.

Tuberculosis and syphilis must be mentioned as possible causes of special types of bronchiectasis.[4] Tuberculosis may complicate a preexisting bronchiectasis. Péhu and Guimet state that though the role of congenital syphilis has been exaggerated,

TABLE II.

Stated Causative Factor.

Source of Information.	Pneumonia.	Other Causes.	Pertussis Alone.	Pertussis and Broncho-pneumonia.	Measles and Pneumonia.	Measles Alone.	Scarlet Fever and Pneumonia.	Influenza.	Dating from Birth and Infancy.
Boyd (56 cases)	23	4 or 5 each	5	—	—	—	—	—	—
Findlay and Graham (23 cases)	8	About 1 each	—	1	—	—	—	—	—
Raia (33 cases)	22	—	5	2	4	—	—	—	—
Royal Alexandra Hospital for Children (120 case records)..	3	—	13	4	1	2	1	2	9

it should be excluded by the performance of a Wassermann test.

The following interesting, but unproven, hypotheses have also been put forward in an attempt to solve this difficult problem.

The condition may arise as a bronchiectasis occurring *in utero*, which, however, only gives rise to symptoms some time after birth.[4] There may be a neuro-muscular incoordination as the basis for obstruction of a similar nature to Hirschsprung's disease,[4] or there may be a congenital defect in the walls of the bronchi, which reacts unfavourably to pulmonary infection in later life.[4]

Prognosis.

The investigations were not as complete as I should have desired, because of the 120 patients only 50 were traced. Thirty-one patients were examined, and the general impression gained from these was that the prognosis of the disease, with reference to its effect on the patient's normal mode of living, is not so grave in this State as has hitherto been believed. In spite of this the disease is still to be regarded as serious, as is indicated by the fact that the average duration of in-patient treatment for bronchiectasis was five weeks. Though of the whole series 65% were in hospital for from two to four weeks only, over one-fifth of the patients had been admitted to the Royal Alexandra Hospital for Children for this disease on more than one occasion, and several patients as many as six times. The ages of the patients traced varied from three to twenty-one years, and the stated duration of the disease from one and a half to seventeen years. Fifteen patients were seen in whom the disease had been present for seven years or more. The time that had elapsed since discharge from the hospital varied from six months to thirteen years; in the case of ten patients this period was six years or more.

Cookson and Mason[11] in a recent paper state that there appears to be no way of assessing the patient's expectation of life, because of the possibility of unexpected and unheralded complications. In spite of this they advocate the more frequent employment of major operative measures, and state that among their patients 31 children under the age of thirteen years had a lower lobe of the lung removed and only four died as a consequence of the operation. This is an operative mortality rate of 13%, and although these two surgeons do not mention the number of complete cures obtained, they regard major operative measures as justifiable.

The records of 21 fatal cases of bronchiectasis were examined; of these patients, 10 had had symptoms for seven months or less, four only had had symptoms for two years or over, and in three cases the duration was not mentioned. This means that 66% or possibly more of the patients had died within two years of the apparent inception of the disease. Of the 21 patients, 14 died before reaching the age of five years and eight before the age of two years. In ten autopsies it was found that in every case the bronchiectasis had affected both lungs, so that in accordance with widely accepted views none of these lives would have been saved by lobectomy, as probably operation would not have been performed in these bilateral cases. Thus it appears that the prognosis in the acute fulminating type of bronchiectasis in infancy is extremely grave, a fact indicated by Findlay and Graham,[12] who concluded that the age of onset of the disease appeared to influence the prognosis, recovery being more probable when the disease developed in later childhood. This fact is further borne out in the present series by the radiographic evidence of severe pulmonary damage in two groups of cases. In a group of 30 cases in which the disease first became manifest at about the age of two years, 19 patients showed severe pulmonary damage (63%), whilst in a group of 45 cases in which the disease appeared to begin at an age higher than five years, 15 patients only showed such evidence (33%).

Of the 35 patients interrogated there were only four who said that they did not lead a normal life or generally look and feel well, and there appeared to be only two whose activities were seriously restricted by the disease. Most of the patients suffered from cough, but in many cases this was only intermittent. Five of those interrogated stated that they did not suffer from cough. Thirteen patients had no sputum; but in 12 cases the sputum was copious, and in these latter cases no correlation could be found between this fact and the site of the lesion or the duration of the disease, as only about half of these cases were bilateral and the duration of symptoms varied from two to seventeen years. About one-third of the patients of school age had lost a considerable amount of time from school, but almost all could play games such as cricket or tennis, or run up a flight of stairs without distress.

L.D., aged fourteen years, had had symptoms for thirteen and a half years. In spite of the fact that he had radiographic evidence of extensive bronchiectasis of both lungs, he could nevertheless ride a bicycle two miles without exhaustion, and was not losing any time from school.

Twenty-two patients had radiographic examinations, and this was compared with films or reports on films taken from six months to thirteen years previously. The reports showed that 11 had improved, though it should be noted that in four cases the original report was only suggestive of bronchiectasis.

J.P., aged twelve years, reported as having definite bronchiectasis at the base of the left lung six years before, showed no evidence of any abnormality in the lungs, even after lipiodol injection and X ray examination.

There were only two unilateral cases in which the condition appeared to have advanced. In seven advanced bilateral cases it could not be judged whether there had been any progress, as some patients had not had lipiodol injections in the first instance.

The present series may give an inaccurate impression, on account of the large number of patients who could not be traced. However, with the help of the Registrar-General's Department, further valuable information was obtained. Search was made in connexion with each of the untraced patients to ascertain whether there was a record of their death within five years of their discharge from hospital. While these results indicated only that they did not die in the State of New South Wales, the possibility of their death in another State or country during that period is fairly remote. In this manner six more deaths in the series were discovered; three were of patients who were under the age of three years at the apparent time of onset of the disease. With the exception of one case, in which the cause of death had been certified as pulmonary tuberculosis, the patients had died of bronchiectasis and/or one of its complications. Out of 64 untraced patients who may be assumed to have been alive five years after their discharge from hospital, 16 had had the disease for a period of eight years or more, and of these, 11, unless cured, would at this time have been suffering from bronchiectasis for ten years.

The results of other published series are as follows:

Roles and Todd[13] showed that in a series of 49 patients treated medically, after five years 23 were dead and nine totally incapacitated. Lebert[13] examined 52 subjects coming to autopsy; he found that 21% had lived one year, 7·7% two years, 30·7% three to five years, 15·5% six to ten years, and 25% had lived over ten years after the appearance of the disease. In Warner's[13] series the average duration of the disease from the onset was ten years. He found 23% of patients were dead after an average of nine years from the onset. Findlay and Graham,[2] in a series of 12 patients observed for up to twelve years after the onset of the disease, had nine deaths. In a later series of 32 definite cases of bronchiectasis they observed the average duration of life after the inception of the disease to be 2·63 years. (In consideration of the difficulty in stating just when the disease begins, these figures should be compared with the present series, in which the commonest duration of symptoms before the first admission to hospital was between one and two years.) The present series indicates that there were probably 99 patients out of 120 who had lived for at least five years after discharge, that is, the 35 patients interrogated and the 64 untraced by the Registrar-General. Findlay and Graham[12] also noted that a preexisting bronchiectatic condition could disappear in cases in which the degree of dilatation was slight, a fact borne out by the present series. Thus it appears that the prognosis of bronchiectasis is extremely complex and difficult to assess. These investigations show that there is a high death rate in the fulminating type in infancy, but that a cross section of a large group of sufferers from the established disease at a later age period shows that the course of their lives is not greatly influenced by the disease.

Treatment.

Prophylactic.

Prophylaxis, in its widest sense, is undoubtedly that part of the treatment of bronchiectasis which will be rewarded with most success; that is to say, the medical attendant should aim at the avoidance of those factors which have been shown to play an apparent part in initiating or aggravating the disease.

Congenital Type.—In those cases in which one assumes a congenital condition of the respiratory tract predisposing to bronchiectasis, whether it be innate low power of resistance to infection or some mechanical factor—that is, those cases in which symptoms date from birth or earliest infancy—one must take special care to avoid chills, prolonged debility from any cause and unnecessary exposure to contact with persons suffering from respiratory infections. The treatment of bronchitis and pneumonia in these cases should always provide a convalescence long enough to ensure complete recovery. Prolonged rest in bed, tonics and possibly a change of climate may be necessary until the medical attendant is satisfied that the chest is free from physical signs of disease.

Allergic Type.—The prophylactic treatment of the few patients who can be regarded as belonging to the allergic group consists in an attempt to avoid the development of a chronic infection of the upper part of the respiratory tract. Hay fever, rhinitis and acute sinusitis all require treatment at the earliest possible moment, to avoid, if possible, the establishment of a chronic condition. In some cases this may involve the patient's admission to a country or seaside home, so that necessitous patients may be afforded a change of environment.

Type following Infectious Fevers.—It is in the group in which the disease follows infectious fevers that prophylactic treatment is of most value, and it would appear from the study of the present series that, if effectively carried out, this would be the most satisfactory form of any known treatment of bronchiectasis. Briefly, this consists of the prophylaxis against the infectious fevers, and no attempts will be made to give a comprehensive description of what this entails.

A plea is put forward for the more intensive use of those methods which are already available in the case of epidemics of measles, whooping cough *et cetera* in this community. The results of present methods are not so striking in these disorders as in diphtheria immunization; but some degree of optimism is justified in the case of the major offender in this series, namely, pertussis. It was found at Grand Rapids[14] that of 2,000 children immunized against pertussis, when 295 were later exposed to pertussis infection 13·5% contracted the disease, while of 2,000 non-immunized children 358 were similarly exposed to infection and 75% contracted the disease.

Treatment of the Established Disease.

It is not intended to give details of the more or less routine medical treatment which has hitherto been used. The records show that most of the 120 patients at the Royal Alexandra Hospital for Children had been given expectorant or antiseptic mixtures, and iron and vitamins had been exhibited. In many cases endonasal antrostomy had been performed, and in a considerable number of cases postural and bronchoscopic drainage had been used. All these forms of treatment are included in the modern conception of the medical treatment of bronchiectasis; but they should follow a complete investigation of the case, and postural and bronchoscopic drainage should be carried out in a complete and logical fashion.

Investigation.—Investigation involves the taking of a satisfactory X ray picture of the lungs with the help of lipiodol, and a thorough search for septic foci elsewhere.. The injection of lipiodol may be done in many ways, and though the most desirable method is its introduction through the bronchoscope, which has also the merit of combining two types of treatment, other methods have their uses. In the series examined the patients were seen at a follow-up clinic, and it was not regarded as justifiable to administer a general anæsthetic or pass a bronchoscope. Thus the pictures were not so satisfactory as they might have been had the ideal method been used; but it was realized that their value in the estimation of the prognosis could not be scientifically accurate, as in many cases there were only plain X ray films from a former occasion with which to compare them. In the case of younger children the laryngeal intubation method was used. The tongue, pharynx and larynx were anæsthetized by being sprayed with a 1% solution of "Decicain". A gum-elastic catheter was bent to a right angle on its introducer and directed by the left forefinger into the larynx, the introducer was withdrawn, and one to two cubic centimetres of "Decicain" were injected down the catheter into the trachea. Fifteen to twenty cubic centimetres of warmed lipiodol were then introduced and the catheter was withdrawn. In the older children it was difficult to withdraw the introducer, owing to the greater length of the bent limb, and the transcricothyreoid membrane route was used. Local anæsthesia was used for the skin and a small puncture wound was made with a tenotomy knife. A straight lipiodol trocar and cannula were then pushed through the cricothyreoid membrane, the trocar was removed, two cubic centimetres of "Novocain" were injected and the lipiodol syringe was screwed onto the cannula. The above technique is described because it is realized that it will not always be possible to use the bronchoscopic method, and it has been pointed out by some observers that lipiodol injections, even when imperfectly given, have some therapeutic value. Balyeat[15] pointed out that iodized oil, having a higher specific gravity than bronchiectatic or asthmatic sputum, replaces the more or less inspissated pus in the dilated cavities and forces the mucus and pus into the larger bronchial tubes, whence it may be expectorated. It would seem from this statement that lipiodol, simply injected, would give a fairly true picture of the dilatations. Blaubaum,[16] however, does not agree and always first aspirates the cavities with the bronchoscope under local anæsthesia.

Sicard and Forestier[17] have described supraglottic, transglottic or intratracheal methods for the introduction of lipiodol. It appears to be a remarkably safe procedure, and these authorities are sure that practically every accident attributed to lipiodol is due to the use of a stale compound. It should never be used if cloudy or darkened. The main contraindications to the use of lipiodol are active tuberculosis and an extreme susceptibility to iodine.[17] Plain X ray photographs should be taken first, so that a tuberculous lesion may be excluded and because the lipiodol may persist in the chest for months and make the interpretation of later X ray films difficult.[17] Archibald and Ballon[17] used a bronchoscope for the introduction of iodized oils in 1925; and unless the patient is too ill this method should be used, as it allows a definite bronchus to be injected under vision after aspiration of its contents. It also allows exclusion of a false impression in the bronchogram when a bronchus has failed to fill owing to stenosis.[18] A foreign body or newgrowth may also be seen. Bonniot[19] advises the complete investigation of the bronchial tree before lobectomy, and in the few cases in which lobectomy may be indicated this seems a proper procedure, so that an unsuspected lesion in another part of the lung, which might contraindicate the operation, may not be missed. As full an investigation as this is a long procedure and entails careful posturing to assure a complete injection so that upper, middle and lower lobes are filled. Antero-posterior and lateral views are always taken; but actually each side should be photographed at a separate sitting and at some interval, so as to avoid overlapping of images in the lateral view.

Bronchoscopic Drainage.—From the literature it appears that, apart from the above uses, the value of bronchoscopic drainage is considerable. As regards anæsthesia, Coutts[20] suggests "Avertin" *plus* a local anæsthetic in the case of children. "Avertin" has been used as a complete anæsthetic for children, and it has been noted in this hospital that most children seem to have a remarkable tolerance to the drug. On the other hand, there also seems to be an element of idiosyncrasy, and in some cases a degree of anæsthesia deeper than desired has been reached in children who had been given less than the dose used by Boyd, of Belfast[21] (0·175 cubic centimetre per kilogram of body weight). Erb[9] suggests that this form of treatment may promote healing in the early stage of the disease, before the cavities become relined with a

flattened epithelium. In the advanced bilateral cases this is the most effective form of treatment available, and Blaubaum[16] points out that aspiration of the bronchi lessens toxæmia and sputum, improves sleep, eases cough and removes fœtor. The suction drainage may be combined with the introduction of or lavage with mild antiseptics, such as eusol or "Metaphen", and Coutts[20] has introduced 10 cubic centimetres of "Titrol" after lavage. In the case of pulmonary abscess, Scott Pinchin and Morlock[22] aspirate the cavity and instil 10 to 20 cubic centimetres of a 10% solution of "Gomenol" and repeat this procedure twice weekly. Their results in a small series of cases published in 1932 were very satisfactory; healing occurred in seven out of eight acute cases and in 10 out of 14 chronic cases. For bronchiectasis they gave weekly treatments for two months and then reduced the frequency. They were of the opinion[23] that with a suitable instrument a long flexible gum-elastic catheter could be passed under vision for five to six inches up the branch bronchi to the periphery of the lung with the greatest ease. W. S. Newton[24] states that in some cases one or two treatments with bronchoscopic drainage are enough and can be followed by postural drainage. Injection of arsenical compounds is used only in the presence of a spirochætal[24] infection. The results of bronchoscopic drainage from the point of view of symptomatic relief are such as to justify its frequent use in the treatment of bronchiectasis, whilst there is evidence also that the treatment may assist cure in early cases.

Postural Drainage.—It appears that for many years postural drainage, even when carried out in a somewhat haphazard manner, has given some symptomatic relief to sufferers from bronchiectasis. It has now been shown that greater benefit can be obtained if the posturing is worked out logically, according to the site of the lesion. Chandler[25] applies this in cases of pulmonary abscess with such effect that he advocates a course of medical treatment no matter at what stage the patients present themselves, as spontaneous cures have resulted from postural drainage controlled by lipiodol investigations. In 1934 H. P. Nelson[26] pointed out that man's assumption of the orthograde position might have interfered with the efficiency of the natural drainage of the chest. He stressed the fact that intermittent inverted postural drainage, that is, the adoption of an almost vertical position for a few minutes daily, has little effect on the secondary or tertiary bronchi, which are those affected in bronchiectasis, though it does aid in clearing the trachea and primary bronchi. He advocated continuous postural drainage, preferably in a comfortable position, the posture to be maintained for hours at a time. Nelson has described three main zones in radiographs of the chest and has advised different postures for draining various zones and parts of zones. For drainage of the upper zone, that is, when the opacity is above the first costal cartilage, Fowler's position is adopted. The middle zone is divided into an axillary, a pectoral and a dorsal part, and lies between the first and fourth costal cartilages. The axillary part is that seen between the second and third ribs in the antero-posterior film, and overlying the trachea in the lateral film. For a right-sided lesion in this region the patient lies flat and rotated onto the left side—that is, in the lateral position; and for a left-sided lesion the patient should be sitting up at an angle of 45° and rotated onto the right side. For the pectoral part of the middle zone, that is, between the second and fourth ribs and anterior to the tracheal axis in the lateral film, the posture is supine. The dorsal part lies posterior to the tracheal axis and the position for drainage is lying flat in the prone position.

The lower zone is also subdivided into anterior basic, axillary basic and posterior basic, and extends from the fourth costal cartilage to the diaphragm. To drain a lesion in the anterior basic region, which is anterior to the tracheal axis in the lateral film, the patient lies flat on the back with the foot of the bed raised twelve inches.

The axillary basic site is that seen in the lateral part of the antero-posterior film, and a lesion here is drained with the patient lying on the opposite side in the lateral position, the foot of the bed being raised twelve inches.

Nelson advised that drainage should be begun with a period of ten minutes before meals, working up to periods of two hours or longer during the night.

Lobectomy and Pneumonectomy.—Details of lobectomy and pneumonectomy will not be given; but it is to be noted that in selected cases thoracic surgeons in other parts of the world, and Susman and others in this country, have used these operations successfully in the treatment of bronchiectasis.

The Justification for Major Surgical Measures in the Treatment of Bronchiectasis in Children.

The solution of the problem of major surgical procedures depends on a knowledge of the curative value of the operations, of the mortality and morbidity rate of the operations *per se*, and of the prognosis of the disease when treated by medical means in conjunction with the less radical surgical procedures. It is neither easy nor fair to state definitely what risk a patient undergoes when submitted to the operation of lobectomy, because the technique is not yet perfected and the mortality rate in the hands of the most skilled is still being reduced. One can only quote figures from the literature and draw what conclusions are justifiable from the previous discussion of the prognosis.

Susman[18] stresses the importance of a full course of medical treatment before major surgery is attempted. The following surgical procedures are used in the treatment of the disease: lobectomy or pneumonectomy, cautery excision, thoracoplasty, extrapleural plombage, phrenic nerve paralysis, artificial pneumothorax or

oleothorax and bronchoscopic drainage. These will be dealt with *seriatim*.

In the opinion of W. S. Newton[24] the results of thoracoplasty are not good enough to justify the risks of the operation. Phrenic nerve avulsion is generally recognized as being rarely, if ever, indicated in the treatment of bronchiectasis. Artificial pneumothorax may be used as a preliminary to lobectomy. Thus the only major surgical procedures that have to be considered here are lobectomy and pneumonectomy.

There is a difference of opinion as to whether lobectomy is justifiable in the bilateral case. Churchill, quoted by Bonniot,[19] has had a complete cure after extirpation of the right middle and left lower lobes. Bonniot[19] himself states that it is better not to operate if both sides are affected. He also advises prudence in the performance of a total pneumonectomy in childhood (though children are reputed to stand the operation well) because of the possibility of a later pneumonia in the remaining lung.

Newton[24] says it is important to restrict surgery to the patients who have no suspicion of involvement of the other lung, and Officer Brown[13] in 1937 indicated that treatment in the bilateral case consisted of medical treatment combined with bronchoscopic drainage. In a later paper[27] he states that extirpation is the only means of cure for bronchiectasis, and mentions that bilateral lobectomy has been successfully carried out on a number of occasions. It is assumed that he refers to advanced cases. Undoubtedly, however, the balance of opinion is against operation in the bilateral case. Thus in this series we shall have to consider only the unilateral cases, which immediately excludes the 43·3% of patients with a bilateral lesion. There is much evidence to show that major surgery is more effective and simpler to perform in children than in adults. Children stand the operation better and have a power of adaptation which is typical of the young organism.[19] The chest wall is better able to accommodate itself to the deformity and adequate ventilation for the demands of a normal life is attained.

Bonniot indicates that if the operation is to be performed at all for this condition, it is best performed in the young.[19] No figures were found giving a large enough series of lobectomies in children to form an accurate estimation of the mortality rate. The mortality rates of some published series, comprising both adults and children, are as follows: Roberts and Nelson in 150 cases lost 15%, including deaths not due to operation;[19] Tudor Edwards, quoted by Bonniot, in 57 cases had a mortality rate of 14%; Graham, quoted by Susman,[19] using cautery pneumonectomy, had 15% of deaths and 70% of symptomatic cures.

The operation of lobectomy is not one which a surgeon would recommend for a child without serious consideration of its consequences. Apart from the immediate mortality rate the complications are to be borne in mind, and also the possibility of a later extension of the disease to another lobe in cases which had been regarded as post-operative cures. As well as the immediate complications, such as shock, hæmorrhage, air embolism *et cetera*, there are many later ones, such as empyema, bronchial fistula, mediastinitis, pericarditis, pyæmia, cardiac and respiratory failure, which may involve a protracted state of morbidity worse than the disease itself.

In the 41 cases in our series in which a unilateral lesion had been reported, it was recorded that in 11 only the lesion was pronounced or extensive. In view of the fact that the discussion on prognosis has shown that there is a distinct tendency for some mild lesions to progress towards recovery with medical treatment, it is only these 11 serious cases in our series in which lobectomy might have been considered. Further, a decision to submit the patient to the risk of operation would be made only if the health and social well-being of the patient were grossly impaired by the disease. In the 50 patients followed up no such case occurred.

Conclusions.

1. The lowering of the incidence of pertussis in the community by the correct use of an effective pertussis vaccine would appear to remove what has been shown to be a frequent causative factor in the development of bronchiectasis.

2. The prognosis of bronchiectasis in this country does not appear to be so grave as indicated by observers in the northern hemisphere.

3. Major surgery, such as lobectomy, is not justifiable in the treatment of bronchiectasis in children in this State, except in extremely isolated cases, and therefore does not form an important part of the treatment of the disease in New South Wales.

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GENERAL PARALYSIS OF THE INSANE IN VICTORIA.

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THE belief is fairly widely held that the present situation in regard to general paralysis of the insane in the State of Victoria can be viewed with satisfaction and even optimism. This belief would appear to be based on the contention that, in the first place, general paralysis of the insane, in common with the other manifestations of syphilis, has declined very considerably in recent years, and that the time is not far distant when a case of general paralysis of the insane will be looked upon as something of a clinical rarity; and that, secondly, in the modern treatment of general paralysis of the insane by some form of hyperpyrexia combined with "Tryparsamide" we have a sufficiently effective means of coping with the disease. The present article is an attempt to discover just how far these two contentions can be justified.

With regard to the incidence of general paralysis of the insane in Victoria, a study of the annual reports of the Victorian Department of Mental Hygiene reveals that the average annual recorded admissions to hospital are as shown in Table I.

TABLE I.

Average Annual Admissions of General Paralytics to Victorian Mental Hospitals as recorded in Annual Report.

Years.	Number of Cases.
1908 to 1912	62
1913 to 1917	73
1918 to 1922	44
1923 to 1927	37
1928 to 1932	30
1933 to 1937	36

If these figures are accepted at their face value, one can see that the present incidence is indeed much lower than that of twenty-five to thirty years ago, but that over the last twenty years there has been no substantial decrease in the number of admissions; indeed the figures for the last group of years, 1933-1937, show an upward trend. As a matter of fact, these official statistics do not reveal the true state of affairs; they are based purely on certified admissions and do not take into account voluntary boarders.

As more and more patients are being admitted to hospital in recent years on a voluntary basis, the true number of admissions of general paralytics for recent years is much higher than shown in Table I. The actual number of annual admissions for the years 1933-1937 was 46, and for the years 1928-1932 it was 40. It may be asked whether a similar increase should be made in the figures for the earlier years. Two points, however, must be remembered. Firstly, the voluntary boarder clause of Victorian lunacy legislation did not come into practical force until 1915, and even for some years later was not availed of to the extent that it is today; thus, even in 1923 only about 100 voluntary boarders were admitted to the Victorian mental hospitals, whereas in 1938 about 400 such patients were admitted. In the second place, prior to the introduction of malaria into the Victorian mental hospitals in 1926 it would appear that very few, if any, general paralytics were admitted on a voluntary basis, since the mental hospitals had no real therapy to offer the early sufferer.

The figures for the earlier years, however, must be attacked from another angle. The Wassermann test of the blood of syphilitic patients was introduced to the Victorian mental hospitals in 1910. One result of this is shown in the fact that whereas in 1909 the number of admissions for general paralysis of the insane was recorded as 44; in 1913 it was recorded as 88, this being an increase

of 100% in the space of four years. Possibly not so many cases were now missed as prior to the introduction of the Wassermann test; but there can be little doubt that for some time after the introduction of the blood Wassermann test there was a distinct tendency to label any psychosis with a coincident blood Wassermann reaction as a case of general paralysis of the insane.

It must be remembered that the very necessary examination of the cerebro-spinal fluid did not become a routine till the introduction of malaria in 1926. I have had the opportunity of examining numerous cases in which the diagnosis of general paralysis of the insane was based on the presence of a positive blood Wassermann reaction in a psychotic patient; examination of the cerebro-spinal fluid and a review of the history and clinical signs have shown that the diagnosis of general paralysis of the insane was almost certainly incorrect. For this reason it would appear that the statistics quoted in the earlier years are too high; and to my mind a more accurate idea of the incidence of general paralysis of the insane in the earlier years would be gained from the data supplied by the pathologist. Every true general paralytic in pre-malarial days would almost certainly die, and die on the average about two years after the overt onset of the disease.

In Table II a column of "corrected" admission figures is placed alongside those already obtained from the official statistics; the "corrected" figures are based in the earlier years on the pathologist's data, an allowance being made for a lag of two years. The number of deaths occurring in the years 1910-1914 are taken as approximating to the number of admissions for the years 1908-1912, and similarly for the second and third year groups. This method could not be applied to the years 1923 to 1927, as malaria therapy was now complicating the issue. The figures for the last ten years are based on a personal check of the patients admitted.

TABLE II.

Average Annual Admissions of General Paralytics to Victorian Mental Hospitals.

Years.	Official Figures.	"Corrected" Figures.
1908 to 1912	62	56
1913 to 1917	73	62
1918 to 1922	44	47
1923 to 1927	37	37
1928 to 1932	30	40
1933 to 1937	36	46

Like the official statistics, the "corrected" figures indicate that there has been no substantial decline in the number of admissions over the last twenty years, and they suggest that though fewer patients are admitted than in the years 1908 to 1912, the decline is not perhaps so large as we sometimes imagine.

In regard to the future, if the present reported decline in primary syphilis is taking place, then there should be a corresponding drop in the incidence of general paralysis of the insane. It must be remembered, however, that since general paralysis of the insane lags some fifteen to twenty years behind primary syphilis, no dramatic decline can be expected in the next ten to fifteen years. Too much faith should not be placed in the efficiency of arsenic and bismuth in warding off general paralysis of the insane. It is now almost thirty years since "Salvarsan" was introduced, supposedly to deal syphilis its death blow, and yet we still get quite enough cases of general paralysis of the insane to cause us concern. Moreover, Joseph E. Moore, who has had wide experience of syphilis in all its aspects at the Johns Hopkins Hospital clinic, believes that even prolonged intensive and adequate treatment of early syphilis with the arsphenamines and heavy metals will not entirely eliminate the possibility of general paralysis of the insane and tabes.(1) Although no attempt has been made at Mont Park to confirm this statement statistically, the number of patients who develop general paralysis of the insane, even after intensive arsenic and bismuth treatment during the primary stage, would indicate that Moore's belief is undoubtedly correct. Furthermore, it must be remembered that many of those patients who later develop some form of neurosyphilis have only minor or no manifestations at all of primary or secondary syphilis. Many paretics admitted to Mont Park Hospital, whose memories have been reliable and who have no false modesty about admitting the risk of infection, are quite definite that they have had no chancre or secondary rash.

For all these reasons it would appear unwise to take too optimistic a view of the decline of general paralysis of the insane for some years to come at all events.

In an effort to find out just how effective the therapy of general paralysis of the insane was proving in Victoria, the results of treatment of a series of 66 consecutive male patients admitted to Mont Park between the middle of 1936 and the end of 1938 were checked up. All of these patients, with the exception of one treated with "Pyrifer", were treated with malaria combined with one or more courses of "Tryparsamide". The results in this series of cases are tabulated in Table III.

TABLE III.

Results of Malarial Therapy.

Group.	Number of Cases.	Percentage.
Remissions	9	13·5
Improved	14	21·0
Arrested	24	36·0
Progressive	11	16·5
Deaths	8	12·0
Total	66	—

The number of patients was restricted to a comparatively small series, as it was found that this ensured greater accuracy in determining the actual results. Under the heading of remissions were

grouped patients who were able to leave hospital and return to some form of employment, not necessarily their previous occupation, as often they were forced lower down on the economic scale. Under the heading of "improved" were grouped patients who were able to leave but not to resume employment. To my mind the results as shown in Table III are far from satisfactory and can give no cause for complacency that our modern therapy (at least as we apply it at present) is coping effectively with general paralysis of the insane.

A number of significant points arise from such results as those quoted above. The first is that, as W. D. Nicol and E. L. Hutton have pointed out, the large percentage of cases of arrested general paralysis of the insane is resulting in the gradual silting up of mental hospitals;[2] thus in the Victorian Mental Hospitals there are about one hundred such patients, the great majority being at Mont Park. The annual cost of maintenance of these hundred patients is approximately £7,000, so that it can be seen that a determined effort to secure better results would be amply justified, if only from the economic point of view. Otherwise, with the increased longevity of paretics, the number of such patients will increase from year to year. Secondly, all of the improved paretics, since they are incapable of employment, must be a burden on their relatives, or, as is more usual, on the pension services of the State. When, in addition, one remembers that even from the remissions only the very exceptional patient can resume anything like a responsible position, the reason for dissatisfaction is obvious. The truth is that neither from the point of view of incidence nor from the results of therapy is the position anything like satisfactory.

The question arises whether anything can be done to improve this state of affairs. I should like to say, in the first place, that the above criticism is not directed at malarial therapy itself. Undoubtedly it is one of the very big advances in modern medicine, and one cannot fail to be astonished at the improvement it often brings in apparently hopeless cases. The trouble, however, is that many patients suffering from paresis are still being sent for malarial therapy far too late. As this has been the complaint of malarial therapists for years, I have attempted to bring forward something concrete from the above series of cases.

Out of the total of 66 patients a fairly reliable history could be obtained in 52 cases; of these 52 patients, 28, or 54%, had a history of overt symptoms of general paralysis of the insane for longer than six months. This conforms with the general impression gained at Mont Park that at least 50% of paretics admitted have had symptoms for a considerable period before coming under treatment; and it is to this 50% that attention must be directed if improvement in the results of therapy is to be hoped for. Confirmation of the importance of early treatment is shown in the fact that, whereas only 30% of the patients in the late stages showed improvement, 55% of those in the early stages did so.

Closer analysis of the 28 cases with histories of longer than six months reveals the causes of this tardy admission, and the steps by which they may be rectified. Of these patients, 17 had been under medical observation for at least six months prior to admission. In eight cases the diagnosis had been missed; two syndromes were noticed most frequently among these undiagnosed cases. The first was the onset of epileptic seizures in a middle-aged patient. These seizures are often deceptively transient and may be regarded as idiopathic. Any patient, however, particularly a male, who begins to have epileptic seizures in middle age, demands a thorough investigation, including, among other things, a blood Wassermann test. The second syndrome that was missed was the slow onset of mental enfeeblement and dulling of cerebration. Undoubtedly too much attention has been paid to grandiose delusions in the descriptions of the clinical picture of general paralysis of the insane. Grandiose delusions may form the so-called classical picture of general paralysis of the insane, but they do not form the typical picture. The typical picture of the paretic is not the man who thinks he has £1,000,000, but the patient who appears to be chronically half-intoxicated; he is fuddled in thought and speech, and that precision of cerebration which we are entitled to expect from a man in the prime of life is missing. In the vast majority of paretics tests directed to the examination of the intellectual acuity, such as the serial subtraction of 7 from 100, and the repetition of five or more digits, will show up this mental enfeeblement and aid in the earlier diagnosis of general paralysis of the insane.

In a further seven cases the patients were known to be syphilitic, and were under treatment with arsenic and bismuth for two to three years, but because the cerebro-spinal fluid was not examined it was not realized that the more radical measure of fever therapy was called for. In only one of these cases was a lumbar puncture done, and in that instance the fluid was examined only when obvious symptoms of general paralysis had developed. Too much emphasis cannot be placed on this group of cases, because until lumbar puncture is employed more generally no radical attack can be made on neurosyphilis. Moore states the position succinctly and bluntly when he says: "The physician who omits to perform a routine spinal puncture in every patient diagnosed as syphilitic is indeed negligent."[3]

Probably the fluid of the early syphilitic should be examined after six months' intensive treatment, and certainly before the patient is discharged as "cured"; the fluid of the late syphilitic should be examined immediately. Only in this way can we determine which patients are actually neurosyphilitics, and which neurosyphilitics are unlikely to respond to routine arsenic and bismuth therapy,

no matter how intensive and how prolonged. The cerebro-spinal fluid examination must not be confined to a Wassermann test, but must include a cell count, a protein estimation and the plotting of a colloidal gold curve. A patient whose fluid yields a strongly positive Wassermann reaction, an increased protein and cell estimation and a gold curve of the paretic type, displays what Stokes aptly terms "the red flag".[4] Such a patient should, in my opinion, be immediately given a course of fever therapy, although there may be no clinical symptoms of general paralysis of the insane. With other neurosyphilitics, whose fluid findings are less pronounced, fever therapy should also be seriously considered if twelve months of intensive chemotherapy has not produced definite improvement. I do not propose to follow this question in greater detail, because to do so would require a lengthy article in itself; my sole object is to urge strongly the routine lumbar puncture of every syphilitic and so to avoid what we have repeatedly seen in patients arriving at Mont Park: the development of typical general paralysis when the patient is actually undergoing intensive arsenic and bismuth therapy.

The remaining two patients who had been under medical supervision were known to be paretics, but either through lack of cooperation by the patient or through a fault in the organization of the clinic, admission for malarial treatment was inadvertently delayed for twelve months or more. They are mentioned only to show that too much reliance should not be placed on the cooperation of these patients and that every step should be taken to ensure their coming for treatment; if need be, and if possible, the patient must be certified.

The relatives of the remaining eleven patients in the later stages, who did not come under medical attention, realized that the patient was far from well and yet no move was made to get him medical treatment. The delay in the consultation of a medical man was often remarkable. As in the other late cases, the two commonest syndromes which were neglected were the slow onset of mental enfeeblement and the occurrence of epileptic seizures. The only remedy appears to lie in the greater education of the public to the realization that a man who in the prime of life begins to show mental failing or has an epileptic seizure, no matter how transient, is in need of medical advice.

To medical men who are not accustomed to dealing with paretics, it may seem that an unnecessary fuss is being made about a relatively infrequent disease. When it is remembered that almost every case of general paralysis brings with it social tragedy for the patient's dependants and relatives, and that it is undoubtedly the most tragic of diseases, it will be realized that one cannot be too radical or too meticulous in combating it. Unless every aid at our disposal is made use of, general paralysis will continue to take its steady toll of human life and place an ever-increasing burden on our mental hospitals and social services.

Acknowledgement.

My thanks are due to Dr. D. D. Cade, medical superintendent of Mont Park Mental Hospital, for permission to make use of the clinical material at Mont Park in compiling this article.

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(1) Joseph E. Moore: "The Modern Treatment of Syphilis", 1932, page 336.
(2) W. D. Nicol and E. L. Hutton: "After-Results of Malarial Therapy", *The Proceedings of the Royal Society of Medicine*, Volume XXX, Section of Psychiatry, March, 1937, page 21.
(3) Joseph E. Moore: *Loco citato*, page 219.
(4) John H. Stokes: "Modern Clinical Syphilology", 1935, page 161.

Reports of Cases.

ANURIA FOLLOWING APPENDICECTOMY.

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WITH A COMMENTARY BY

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Clinical History.

(B. J. Basil-Jones.)

THE report from the Broken Hill and District Hospital of an occurrence of anuria after appendicectomy and of the methods used in treatment which appeared in THE MEDICAL JOURNAL OF AUSTRALIA of May 13, 1939, suggested that some useful purpose might be served by the review of a similar case.

R.W., a male, aged nine years, was admitted to the Royal North Shore Hospital of Sydney on April 25, 1939, on the recommendation of Dr. F. J. McEncroe, of Gosford.

There was a history of a recent attack of pain in the right iliac fossa of two days' duration, moderately severe and remaining localized. Pain was absent on the patient's admission to hospital, and had been so for the preceding twenty-four hours. There had been associated nausea, and vomiting had occurred on one occasion. The appetite had been poor for three days, but the bowel action had been regular. There were no urinary symptoms. It was the patient's first severe illness.

Physical examination revealed tenderness on deep pressure in the right iliac fossa, but no abdominal rigidity.

Microscopic examination of the urine revealed no cells and no organisms were grown on attempted culture. The patient's temperature was 99° F.

Appendicectomy was performed on May 4, and a twisted subacutely inflamed appendix was found, bound down and constricted at its proximal end by adhesions. There was a small quantity of clear free fluid in the peritoneal cavity. After operation the patient progressed favourably, the temperature falling from 100° to 98·6° F. on the fourth day.

On May 9, the fifth day after operation, the child complained of some nausea and upper abdominal pain, and vomited undigested food. The temperature was normal and there were no abnormal physical signs. On May 10, the sixth day after appendicectomy, the patient suddenly commenced to have convulsive seizures; at first isolated muscle groups, then the left half of the body and finally the whole body were involved. Between the seizures, which became more frequent and of longer duration, there was a transient paralysis of the muscles involved. An enema and sedatives failing to control the fits, a basal dose of "Avertin" was injected *per rectum* and gave immediate rest.

Lumbar puncture was performed and clear fluid was obtained under normal pressure; no abnormality was revealed by microscopic or biochemical examination. The temperature was 101° F., the pulse rate 130 per minute, and the respirations numbered 35 per minute.

On May 11, the seventh day after operation, the patient was still very restless and irritable and was having minor convulsive seizures. The abdomen was distended and the patient dehydrated; one pint of 5% glucose in saline solution was given intramuscularly into the thighs. Up till this time the urine had not been measured, but it is known that the daily quantity was small.

On the morning of May 12, the eighth day after operation, the child had passed *per urethram* only a few drops of blood-stained mucus in the previous twelve hours, but had the desire to micturate. On catheterization of the bladder, however, no urine was obtained. The blood urea level was found to be 140 milligrammes *per centum* and the blood creatinine content 5·6 milligrammes *per centum*. Further intramuscular injections of glucose in saline solution were administered and the child was also given 300 cubic centimetres of 4·28% sodium sulphate solution intravenously. Sodium sulphate has been advised as a diuretic in these conditions, because it has no threshold level in the blood and is not stored in the tissues, but remains in the circulation to stimulate diuresis; further, it is not reabsorbed by the kidney tubules.

On May 13, nine days after appendicectomy, there was tenderness in both loins, most acute on the left. As no further urine had been passed and the blood urea level was 110 milligrammes *per centum*, cystoscopy was performed and an unsuccessful attempt was made to pass ureteric catheters. Both ureteric orifices appeared red and œdematous. Pyelostomy was then resorted to. An oblique incision was made in the left loin (the side of greater tenderness), the muscle layers were split and the kidney was exposed. The perirenal tissue was œdematous and the kidney and pelvis were tense. Aspiration of the renal pelvis produced blood-stained urine, which subsequently proved to be sterile. An incision was made in the posterior aspect of the kidney pelvis and a tube drain was inserted up to, but not into, the renal pelvis. The wound was then closed in layers.

On May 14 urine was draining freely from the pyelostomy wound, but the child's condition remained the same; irritability and considerable abdominal distension were present.

On May 15 the blood urea level was 160 milligrammes *per centum*.

On May 16 the blood urea level was 144 milligrammes *per centum*; the child was still very restless, but was less dehydrated and was taking larger quantities of fluid by mouth.

On May 17 the child had improved; less mental excitement and less abdominal distension were present. The blood urea level was 106 milligrammes *per centum*.

On May 19, six days after pyelostomy, the child passed seven ounces of urine *per urethram*; it contained blood, albumin and pus. At the same time urine was still draining from the wound in the flank; the blood urea level was 61 milligrammes *per centum*.

From this day onwards the child continued to pass urine naturally, and after a week was secreting up to 36 ounces per day. The urine contained *Bacillus coli communis*, pus cells and red blood cells. The patient had a swinging temperature up to 103° F. for some days while the urine contained pus and organisms. This infection was overcome by sulphanilamide and mandelate therapy.

Urine had ceased to drain from the pyelostomy wound by May 30, and the blood urea level was then 25 milligrammes *per centum*.

Convalescence was somewhat slow; but on June 14 the urine was free from pus and organisms and the child was apyrexial. An excretion urogram made on June 8 showed normal renal function, normal ureters, slight dilatation of the renal pelvis on the side operated upon, but no stasis.

The patient was discharged from hospital, cured, on June 23, 1939.

Acknowledgements.

I have to thank Dr. R. A. Money and Dr. Colin Edwards, under whose care the patient was placed, and Dr. J. R. Radcliff, Medical Superintendent of the Royal North Shore Hospital of Sydney, for permission to report this case.

Commentary.

(Colin Edwards.)

The surgical treatment of post-operative anuria is of considerable importance. If no treatment is instituted, such cases as this almost invariably have a fatal termination.

The general condition of the patient is usually so poor that minimal intervention is desirable.

The principles determining the value of surgical treatment are the following:

1. Bilateral ureteric catheterization is practised whenever possible. If this fails, as it usually does, there remain several possible methods of treatment.

2. If pain or tenderness is present in one or both loins (indicating a functional kidney), the more tender, or the one which was last painful, is the side selected for operation.

3. In the absence of such pain both kidneys are exposed simultaneously by means of vertical incisions at the lateral borders of the *erector spinæ* muscles, the patient lying prone.

4. If the renal pelvis is distended, pyelostomy is performed. (Should any organic obstruction be found, nephrostomy is preferred as being more permanent; but it requires more time and does more damage to renal tissue.)

5. In the absence of pelvic distension (indicating a "renal" or "supra-renal" cause of anuria, as opposed to an "infra-renal" cause) decapsulation should be performed in addition to pyelostomy.

The nature of the lesion is elusive. In *post mortem* specimens gross œdema of the ureter has been noted throughout its length without any apparent cause. Infection is not necessarily present. In the case cited the urine collected at operation was sterile. The œdema of the ureter is responsible for the frequent failure to pass ureteric catheters.

The prognosis is good when the pelvis is distended with urine. If one side is drained, the opposite kidney will commence to function between the fourth and the seventh post-operative days. When there is no urine in the renal pelves the outlook is very grave. Although decapsulation may cause the kidneys to secrete urine again and prolong life, the ultimate survival of the patient is doubtful.

Reviews.

SCIENCE AND SEX.

It is not much more than two decades ago that works on sex were largely confined to treatises on venereal disease or on sex psychology, some of the latter being good, but most based on evidence of an unscientific nature. Then came a spate of books for the public, the subjects varying from contraception to advice on the achievement of connubial bliss. During the last two decades, however, one of the most startling developments in modern biology has been associated with two lines of scientific research in sex phenomena—sex determination and sex hormones. The output of literature in the scientific journals has been enormous. It is therefore with a real welcome that we can review a volume such as "Sex and Internal Secretions", edited by Edgar Allen, of the University of Yale.[1]

This production will certainly be a necessity for all libraries. Its position is indicated by the fact that it is a survey of recent research and that it consists of five sections covering a series of chapters, each one written by an authority. The volume contains no less than 1,346 pages, with some coloured plates, as well as many illus-

[1] "Sex and Internal Secretions: A Survey of Recent Research", edited by E. Allen, in association with C. H. Danforth and E. A. Doisy, with a foreword by R. M. Yerkes; Second Edition; 1939. London: Baillière, Tindall and Cox. Medium 8vo, pp. 1380, with illustrations. Price: 54s. net.

trations, and is altogether a most valuable contribution to scientific literature.

The first section comprises a general biological introduction by Professor Frank R. Lillie, of world-wide renown as emeritus professor of embryology, University of Chicago. Following this are chapters on sex determination and the most modern genetical researches on the modification of sex development in the lower vertebrates and the mammals. Here we meet with such names as Bridges and Witschi—leaders in their special fields.

After this section five chapters, each by an expert, follow on the physiology of the sex glands and accessory organs. Section C consists of four chapters on the biological chemistry and assay of gonadal hormones, and the last two sections cover the fields of the relation of the hypophysis and other hormones to the reproductive system, the relation of vitamins to the sex glands, and such topics as the "Sex Drive" and "Sex Functions in Man".

It is difficult to single out details in a work of such magnitude, but considering the interest in the fields of research covered and the great output of literature, the authors have kept well up to date. The illustrations are good too.

It is a refreshing change indeed to move from the field of cheap literature on the sexual life of man to the invigorating sphere of practical research. The biological investigation of such problems as sex determination and sex hormones has opened up an amazingly useful field of discovery from the point of view of the physiology of the heredity mechanism as well as that of medicine. But it would be practically impossible for the non-specialist to discover what has been made known; indeed it is difficult for the specialist to follow it up and, particularly in Australia, to obtain the necessary literature.

In this volume it is possible to pass from such topics as a summary of that new and most interesting method, the bio-electric method, of recording human ovulation to the relationship between œstrogen injections and tumours in mice, to tests for pregnancy, or the story of the freemartin in cattle. And if that is not sufficient, a final table indicates that already over 100 commercial preparations of sex hormones are in existence for human use!

The work to which reference is made above is a second edition; the original one appeared in 1932, but copies of that were almost unobtainable. As indicated above, the production of a second edition has meant the rewriting of certain sections and the addition of new contributors to the list. It is most interesting to notice that grants of money from the National Research Council of the United States of America made this second edition possible.

CHILD PSYCHOTHERAPY.

IT has often been said that man's increasing control of his material environment has so far outstripped his understanding of the human material, for which all this machinery has been made available, that there is a risk of its proving eventually the undoing of the race, unless it is wisely used. This is true in many other spheres than the hackneyed one of the scientific exploitation of the destructive agencies of war. For instance, to take examples that closely concern our profession, workers' compensation and national health insurance are complicated pieces of machinery, which might confer inestimable benefits in an enlightened community, but in practice are liable only to increase neurosis through selfish exploitation.

Among the welter of the schools of psychopathology all are agreed regarding the supreme importance of child study in preserving the mental health of the race. One only has to think of the remarkable results of animal training to be convinced of the extreme plasticity and malleability of the youthful mind. The school teacher is most favourably placed to observe the early manifestations of emotional maladjustment, which may portend future neurosis or other personality disorder. However, he is often not equipped to deal with it effectively without medical aid. Similarly, the medical man often needs to call the pedagogue to his aid to do the most that can be done for his young patient. Healthy character training needs to be kept in the forefront by both professions and placed on no inferior level to physical well-being or intellectual accomplishment. Here is a frontier region where the closest cooperation is demanded between the medical and educational professions. In the child guidance clinic machinery is provided for such cooperation, which has already proved so successful that clinics are multiplying all over the world.

Therefore the appearance of a monograph which insists on the importance of faulty character development in the ætiology of the neuroses should prove of interest both to general practitioners and to exponents of psychological medicine. "Practical Child Psychotherapy",[1] by Curt Boenheim, is based on the author's experience over a period of ten years in the Clinic for Nervous and Difficult Children at the Kaiser and Kaiserin Friedrich Kinderkrankenhaus, described as the largest clinic in Berlin for the treatment of nervous children. The writer, who is now associated with the Tavistock Clinic in London, shows a commendable mastery of the English language, which makes easy reading; but his predominantly German bibliography is a disadvantage. The wealth of literature already available on educational aspects of the problem child is pointed out, but no detailed discussion of this is undertaken; however, "careful selection has been made of those conditions which are most important from the point of view of the general practitioner and the children's doctor".

In a concise treatise of this nature, covering as wide a field as it does, it is inevitable that the author should state his views more or less dogmatically; and if the reader is not always convinced, he will at least find the matter interesting and provocative. The somewhat sketchy descriptions of the techniques employed is apt to be a little disappointing, but it is explained that the aim is to assist the physician in deciding on the mode of treatment to be adopted by the discussion of the ætiology of different disorders, the part attributed to symptoms as such and to their roots in the character, the practical application depending on the personality of the physician.

The concluding paragraph of the book is worth quotation: "Apart from early treatment of errors of mental development, other tasks await us, such as the training of physicians, teachers, nurses and all those to whom the care, upbringing and education of children is entrusted."

Notes on Books, Current Journals and New Appliances.

LEWIS'S LIBRARY CATALOGUE.

IN the issue of May 13, 1939, attention was drawn to the first part of the catalogue of Lewis's Medical and Scientific Lending Library. Part II of the catalogue has now appeared.[2] This part is a classified index of subjects and authors; the first part was an index of authors and titles. The subjects in the second part are given in alphabetical order and the authors' names are given with their initials. Parts I and II taken together are a useful index of medical books, apart altogether from their value in relation to the library of H. K. Lewis and Company. It may be useful to remind readers that Lewis's library contains 60,000 volumes and is available to medical practitioners who pay an annual subscription. Subscribers abroad are required to pay, in addition to the subscription fee, a deposit amounting to half the annual subscription. They must also pay postage on books borrowed.

[1] "Practical Child Psychotherapy", by C. Boenheim, with a foreword by H. Finkelstein; 1938. London: John Bale Medical Publications Limited. Demy 8vo, pp. 177. Price: 10s. 6d. net.

[2] "Catalogue of Lewis's Medical and Scientific Lending Library. Part II: Classified Index of Subjects, with Names of Authors who have Written upon Them"; New Edition, revised to the end of 1937; 1939. London: H. K. Lewis and Company Limited. Demy 8vo, pp. 156. Price: 16s. net.

The Medical Journal of Australia

SATURDAY, SEPTEMBER 2, 1939.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

THE NEW SOUTH WALES MEDICAL PRACTITIONERS ACT, 1938-1939, AND ITS REGULATIONS.

THE New South Wales *Medical Practitioners Act*, 1938, was amended by the *Medical Practitioners (Amendment) Act*, 1939, which recieved Royal assent on June 20, 1939. The 1938 act as amended is known as the *Medical Practitioners Act*, 1938-1939; it supersedes the *Medical Act*, 1912 *and* 1915. The regulations made under the act have been published in the *Government Gazette of the State of New South Wales*, Number 123, of August 11, 1939. The act contains certain provisions which, though they may give rise to controversy, will be approved by many; the act would make it appear that Parliament has a desire to protect the people from inadequately trained medical practitioners. The regulations, on the other hand, are so extraordinary that it is difficult to believe that they have been framed by anyone who had a share in the drafting of the act.

All persons who were registered in pursuance of the acts repealed by the present act are deemed to be registered under the present act. For registration in the future under the new act an applicant will have to prove to the satisfaction of the Medical Board that he can fulfil one of the following set of requirements: (*a*) That he is the holder of a degree (granted after due examination) in medicine or surgery of any university in the Commonwealth of Australia or the Dominion of New Zealand. (*b*) That he has passed through a course of medical study of five or more years' duration in a school of medicine in some part of the British Empire, of a standard recognized by the board as being not lower in standard than that required by the University of Sydney; that he has obtained a degree or diploma from such medical school; and that he is by law entitled to be registered or to practise as a medical practitioner in that part of the British Empire. (*c*) That he has passed through a course of medical study of five or more years' duration at a medical school in some country which is not part of the British Empire; that he has obtained a degree or diploma from a university, college or other body associated with the school of medicine; that he is or was entitled by law to be registered or to practise in such country; and that he has in addition passed the fourth, fifth and final degree examinations in the Faculty of Medicine at the University of Sydney, after attending the prescribed courses of instruction. (*d*) That he has passed through a course of medical study of five or more years' duration in a school of medicine in some part of the Empire or some other country; that he has received a degree or diploma from a university, college or other body associated with the medical school; and that he has for three years or more held a certificate of registration for post-graduate teaching or for research work under the provisions of the act. Registration for post-graduate teaching or for research work is to be granted at the request of any institution or organization interested in such undertakings. Registration will not be for a period of more than a year, and may be renewed from time to time for a like period. Provision is also made for regional registration in respect of areas not adequately provided with medical services. A person applying for regional registration must show that he has passed through a course of study of five or more years' duration in a medical school in some part of the

British Empire or some other country, that he has received a degree or diploma from a university or college associated with such medical school, that he is or was entitled to be registered or to practise as a medical practitioner in some part of the British Empire or other country, and that he has such experience in the practice of medicine and surgery as in the opinion of the board is necessary for the proper provision of medical and surgical attention for the inhabitants of the proclaimed region. Registration in these circumstances is for a period of one year, and is renewable for further periods of a year. A person who has held regional registration for five years or more may apply for full registration. Full registration will not be given in any one year to more than eight persons who are not natural-born British subjects; this provision does not apply to those coming under the categories (*a*) and (*b*) already mentioned. The board has power to recommend to the Minister that the requirements already mentioned shall be waived in regard to any person who has special qualifications or special experience that would justify the taking of such step. If the Minister approves the board's recommendation the person can be registered.

When a person is registered under the act in accordance with the requirements already set out, he shall be regarded as competent to hold a resident appointment at any public hospital or separate institution within the meaning of the *Public Hospitals Act*, 1929-1937, or as a medical officer in any private hospital or other institution approved by the board. Apart from this no person will be allowed to practise his profession unless or until he has served for a period of twelve months or for periods amounting in the aggregate to twelve months as a medical officer in one or more hospitals or institutions approved by the board, or until he satisfies the board that he has so served.

It is also necessary to point out that certain provisions are stated in regard to reciprocity both in parts of the British Empire and in other countries. This part of the act and also that dealing with disciplinary tribunals and the institution of a Medical Practitioners Charges Committee need not be described.

The provisions of the act dealing with unregistered persons are of the greatest importance. No unregistered person is to be allowed to hold an appointment (whether honorary or not) either as a medical officer in a hospital or other institution affording medical relief or as a medical officer of health. The penalties for a person who poses as a medical practitioner are severe.

42. (1) Any person, not registered under this Act, who takes or uses any name, initials, word, title, addition, description or symbol which having regard to the circumstances in which it is taken or used indicates or is capable of being understood to indicate or is calculated to lead persons to infer that he possesses a degree, diploma, or other qualification of a nature which would entitle him to be registered as a medical practitioner, or that he is registered as a medical practitioner under this Act, shall be guilty of an offence and shall be liable on conviction to a penalty not exceeding fifty pounds.

(2) No person shall, otherwise than in accordance with the regulations, advertise himself to be entitled, qualified, able or willing to practise medicine or surgery in any of its branches or to give or perform any medical or surgical advice, service, attendance or operation.

Any person who contravenes any of the provisions of this subsection shall be guilty of an offence and shall be liable on conviction to a penalty not exceeding fifty pounds.

So much for the act itself. The regulations tell quite a different story. Those dealing with advertising by registered persons are rightly quite strict; those dealing with advertising by unregistered persons are most surprising. The first of these refers to the proscription in the act in regard to an unregistered person posing as a medical practitioner. The next two read as follows:

28. For a period of three months from the date of the commencement of the first regulations made under the Act an unregistered person may advertise himself to be entitled, qualified, able or willing to practise medicine or surgery in any of its branches or to give or perform any medical or surgical advice, service, attendance or operation, in the same manner as he was lawfully entitled so to do prior to the commencement of the Act.

29. After the expiration of three months from the commencement of the first regulations made under the Act an unregistered person may advertise himself to be entitled, qualified, able or willing to practise medicine or surgery in any of its branches or to give or perform any medical or surgical advice, service, attendance or operation in accordance with Regulations 30 to 36.

Put bluntly, the position is that a medical student at the end of five years' intensive study at a university is not permitted to practise medicine or

to perform surgical operations until he has spent a year as a resident medical officer at a hospital; an unregistered person, however, may advertise that he is "entitled, qualified, able or willing to practise medicine or surgery in any of its branches", and this perhaps with no training at all. It is true that an unregistered person cannot in his advertisement include any reference to cancer, tuberculosis, epilepsy, diabetes or venereal disease; but he has a fairly large field outside those conditions in which he can do a great deal of damage. Moreover, he is allowed to "advertise by spoken words, whether directly or through the medium of any apparatus for the reproduction of sound". The Parliament of New South Wales, far from controlling unregistered practitioners, is encouraging them and is exposing the public to grave danger. At the present time medical students and resident medical officers of hospitals are being questioned by a select committee of both houses of Parliament on their opinions of the quality of the teaching received by them and on the practical work that they are allowed to do. In view of this type of legislation such questionings savour more of humbug than of anything else. Parliament cannot expect the public to believe that it has the welfare of the community at heart when it is capable of such atavistic legislation. Instead of seizing on an opportunity of conserving the public health, it is doing the community a disservice.

Current Comment.

THE ACTION OF CONGO RED.

CONGO RED has gained a reputation for being of value as a hæmostatic; it has been considerably used in cases of hæmoptysis and to a less extent hæmatemesis, and has also been recommended in pernicious anæmia as an adjuvant to blood regeneration, and in cases of general infections. The last-mentioned applications are of very doubtful value; but it is considered to be of definite use in hæmoptysis, which is always a dangerous condition, even though it does not often threaten life immediately. When bleeding from a vessel in the pulmonary tissue is at all profuse there are risks, perhaps not overt but not the less real, for the partial plugging of small and medium sized bronchi not only causes partial collapse of the lung, but also favours air-borne infection of previously healthy areas. Hence any measure which seems to help in the prompt arrest of hæmoptysis is welcomed. It has been found, however, that this dye may cause some humoral shock, and adequate doses (say 10 cubic centimetres of 1% congo red) occasionally give rise to disturbing reactions, whereas a smaller dose (say five centimetres) is likely to prove ineffective. Therefore we must agree with A. P. Richardson and J. R. Dillon[1] when they preface their article on the toxicity and systemic reactions of congo red with the statement that accurate information on these points is desirable.

The dye used by these workers is a colloidal solution of 1% congo red in 5% aqueous solution of dextrose. This has been found more suitable than a solution in normal saline, because of greater stability. These authors found that laboratory animals differed widely in their tolerance of the dye; but it would appear from their results that the usual doses employed for human beings are well within the margin of safety. One important point is that in animals at least saline solutions of the dye are more toxic than those in glucose, owing to the readier flocculation occurring in the saline mixtures. This is important, because severe reactions have been known to occur in this part of the world when a simple saline mixture was used. When toxic symptoms occur in animals they are characterized by general depression and collapse, and death is due to circulatory collapse following direct depression of the heart, as Richardson and Dillon have proved by pharmacological experiments. Cardiac muscle in general appears to be stimulated by congo red, as are smooth muscles also, and fatal doses cause stoppage of the heart in systole. Richardson has also pursued the question of the absorption of congo red from the blood. He found that only the intravenous route is effective, and once the dye is injected it leaves the blood stream at a constant rate, all traces having disappeared in twenty-four to seventy-two hours. It appears to be diverted to organs which contain large amounts of tissue fluid, and in cats and rabbits at least the kidney has a definite affinity for it, though it is excreted chiefly through the biliary passages. Richardson's further researches concern the action of congo red on the blood as a tissue. There is a certain antihæmolytic effect on the red blood cells, due to the production of a film; but no consistent effects on hæmoglobin concentration, number of red blood cells or platelets was observed. Richardson could not detect any increase in reticulocytes, but a moderate leucocytosis was observed. More interesting perhaps, in view of the alleged hæmostatic action of the dye, is the investigation into bleeding times and blood coagulation. No consistent changes in these regards was noted, so that it seems that there is no definite experimental evidence to support the claims made for congo red as a hæmostatic. The authors remarks that these

[1] *The American Journal of the Medical Sciences*, July, 1939.

findings may not apply to pathological states, and in pernicious anæmia it certainly has been asserted by some writers that remissions sometimes follow its use. Perhaps also after sudden blood loss conditions arise which may modify or amplify the action of the dye as observed in normal animals; but in any case it is useful to have some controlled observations concerning this substance, and in particular concerning factors governing its possible toxicity.

LATHYRISM.

The disease known as lathyrism was recognized in Europe as long ago as the seventeenth century, and was even then ascribed to the ingestion of vetches of the genus *Lathyrus*. It has now become a great rarity in Europe and is almost wholly confined to India, where it has been most extensively studied. It is only within recent years that serious doubt has been expressed concerning the importance of the pea *Lathyrus sativus* in the causation of the disease. Vitamin deficiency (which incidentally seems nowadays to be regarded as the cause of almost everything not due to endocrine imbalance) has been considered and not wholly discarded. One or two observers have administered *Lathyrus sativus* to animals without producing the disease. Some have regarded the pea *Vicia sativa*, which is sometimes associated with *Lathyrus sativus*, as the cause. Support has been afforded to this view by the results of an investigation of an outbreak of lathyrism in a Punjab village by S. R. A. Shah.[1] The disease was previously unknown in the locality, and it was attributed by the villagers to "the curse of certain Sadhus who had been abused and turned away from the village by them". The population of 205 consisted of 104 Sikhs, 71 Moslems, 21 Christians and nine Hindus. The Sikhs were farmers with very small holdings, and they were very poor. The patients numbered 64, 59 being Sikhs and five Moslems. All those severely affected were Sikhs; the Moslems suffered from a mild type of the disease only. The symptoms described by Shah leave no doubt concerning the correctness of the diagnosis. Shah's difficulty was to correlate the diagnosis with the customs of the inhabitants. These people did not cultivate or use *Lathyrus sativus*. On Shah's advice they promised to get rid of all their old stocks of grain, excepting wheat, with which they were loath to part. Shah had not suspected wheat; but he soon had cause to suspect it, for there was a general complaint of the patients that whenever they ate wheat *chappatis* they suffered exacerbation of the disease. Inquiry revealed that it was only food prepared from old stocks of wheat that had the deleterious effect. Some of the villagers, despite instructions, had not disposed of their old stocks of *dâl* and rice; but they were unaffected unless they ate wheat *chappatis*. Examination of the wheat revealed contamination by seeds of *Vicia sativa* (*akta*). So that there should be no doubt as to the identity of the seeds, a number of them were sown and the grown plants were compared with a dried specimen of *Vicia sativa* loaned by the professor of botany of the Government College, Lahore. The use of old wheat as food was discontinued and no further exacerbations occurred.

Unfortunately Shah does not give any reason for the high incidence and the greater severity of the disease among the Sikh population. It may be that they had different dietary habits or that, as they were the agriculturists and controlled the grain supply, they kept the wheat for themselves. Shah found that the mere removal of the offending substance from the diet was not sufficient to cause any improvement in the patients' condition. He therefore instituted vitamin therapy, giving large doses of "Adexolin" to some patients and halibut liver oil to others. He believes that this was responsible for a remarkable advance towards recovery. The aching of spastic muscles and the tingling sensation in the feet disappeared and the muscles gradually regained strength. At the end of six months more than half the patients had returned to work and the condition of the remainder had greatly improved. Complete cure occurred in a few milder cases only. Shah remarks that avitaminosis seems to play some part in the production of symptoms. He makes this suggestion partly as the result of this experience in treatment with vitamins and partly because some of the symptoms observed by him resembled those of beriberi and pellagra. Actually, on the evidence of this outbreak, avitaminosis cannot be ruled out as a cause of lathyrism. The people were poor and ill nourished and probably suffered from lack of vitamins. But the fact remains that the progress of the disease ceased when seeds of *Vicia sativa* were eliminated from the diet and exacerbations occurred whenever these seeds were eaten. It seems unlikely that lathyrism is a deficiency disease, and almost certain that it has a toxic origin and is caused by ingestion of seeds of *Vicia sativa*. "Lathyrism" is a misnomer; but it is safe to say that it will take a long time to die.

[1] *The Indian Medical Gazette*, July, 1939.

SCARABIASIS.

"The poor fellow has beetles." Such a statement may be taken to imply that the person referred to has "bats in the belfry", or at least some derangement of the psyche. But a moment's thought reveals the true meaning, namely "scarabiasis", for it would seem that beetles really do infest man. Most medical men have had some experience of patients who insist that they have passed such things as cockroaches, moths, scorpions *et cetera* in their stools or have voided them in their sputum. Such stories are usually greeted with justifiable scepticism or utter incredulity; but it might be wise for the medical attendant to make careful inquiry before

dismissing them entirely. Strange things have come from the human intestine. The occurrence of larvæ of Coleoptera in the nasal passages, urinary passages or alimentary tract has been recorded from time to time during the past two centuries. The earliest report mentioned by Castellani and Chalmers was made by Van Brommell, in Sweden, in 1729. Castellani and Chalmers apply the term "cantheriasis" to the condition. In India there have been numerous records of the appearance of adult beetles in the stools. An investigation of the condition has recently been made in that country by C. Strickland and D. N. Roy.[1] Many fantastic stories come from India, and many of its inhabitants believe implicitly in things that to more widely educated people appear ridiculous. The existence of such a creature, for instance, as the hoop snake is accepted without question in certain places. For the information of those who have not yet encountered a hoop snake, we might mention that this cunning reptile curves itself into a circle, takes its tail in its mouth and bowls along like a hoop at a terrific speed, while its intended victim races away in terror. But Strickland and Roy are convinced of the existence of human scarabiasis; there have been enough reports by competent observers to dispel all doubt. It seems that the insects may be passed at intervals during a period of months. "These and other circumstances have led one to conclude that adult beetles live in the intestine of the patients."

Strickland and Roy remark on the age incidence. There is only one report of scarabiasis in an adult. Sucklings apparently are not affected; it seems that the child must be able to take solid food before infestation can occur. The affected child may suffer from loss of appetite, diarrhœa and dysenteric symptoms. Emaciation is apt to occur. There may be some pyrexia.

He has usually been treated for his intestinal symptoms and the passing of an insect with the stool naturally causes great alarm. The stool is usally semi-solid, never hard, and after it has been voided the attention of the mother may be attracted to some movement in it, a beetle gradually looms up to the surface, emerges and flies away.

The insects seen by Strickland and Roy proved to belong to the sub-family Coprinæ (so-called dung beetles), most of them being species of *Onthophagus*. These beetles normally develop from egg to imago in dung, the life cycle occupying a period of six or seven weeks.

It is interesting to conjecture on the route of infestation. The mud floors of houses in East Bengal, where scarabiasis is more common, are smeared every morning with a mixture of cowdung in water. If eggs of Coprinæ were present they could be readily ingested by young children, who are not averse to eating food picked up from the floor. In such an event it would be assumed that the metamorphosis of the insect would take place in the child's intestine, and larval and pupal skins would be passed in the fæces. Strickland and Roy have not had the opportunity of observing whether this does take place. It has been suggested that adult beetles enter the rectum through the anus. This view gained some support from the results of an investigation of the sex of a number of beetles that had been voided with the fæces, all but one being females. The suggestion was that they had entered the anus to lay their eggs. However, in the series investigated by Strickland and Roy males preponderated. The freedom of helpless sucklings from the infestation is against the hypothesis of invasion by the anus; for "they particularly lie about on the floors and are often in such an unclean condition that they should be most attractive to the beetles". Whatever the path of entry, it is difficult to explain why the patients continue to pass the insects for months, even after they have been removed to a healthier environment. A great deal more requires explanation. The less incredulous people will be prepared to accept the statement that beetles may be passed *per anum* (if myiasis, why not scarabiasis?); but they will want to know how the insect manages to remain in the human intestine for several weeks during its metamorphosis or, if the invasion is in the nature of an attack from the rear, why the insect will undertake a difficult passage through the anus when there are ample supplies of fæces available to it on the ground. There are other features on which we should like to be enlightened. We shall look forward with interest to future communications on this diverting subject.

[1] *The Indian Medical Gazette*, July, 1939.

"VERITOL", A BLOOD PRESSURE STIMULANT.

In the October, 1937, issue of *The Australian and New Zealand Journal of Surgery* Sir Stanton Hicks described "Veritol" as being the nearest approach so far obtained to the ideal physiological restorative of the circulating blood volume, provided the depots were not depleted. The attention of Harold Dodd and Gerald Merton, of London, was drawn to this statement and they have recorded their findings following 68 injections in 40 major surgical conditions; 58 injections were given during surgical operation and ten to debilitated patients two or three days after operation.[1] "Veritol" is a proprietary product closely related to hordenine and tyramine. The manufacturers claim that it has a beneficial action on the coronary vessels, that it increases the systolic and diastolic blood pressure, that it has no pronounced effect on the pulse rate or blood sugar content, that it empties the blood depots and that it has neither local nor general toxic effects. Dodd and Merton find that it is a reliable and satisfactory restorative of blood pressure even when given intramuscularly; its only weakness is that its effect does not last long enough.

Short notes of the authors' forty cases are included in their article.

[1] *The British Journal of Surgery*, July, 1939.

Abstracts from Current Medical Literature.

GYNÆCOLOGY.

Abortion.

PERCY MALPAS (*The Journal of Obstetrics and Gynæcology of the British Empire*, December, 1938) points out that abortion and stillbirth sequences may be caused on the one hand by some condition inimical to the fœtus recurring in each pregnancy, or on the other hand to incidence in successive pregnancies of chance or casual factors. In the author's series 18% of pregnancies ended in abortion. Most abortions are due to non-recurrent causes. The occurrence of three or more successive abortions is almost certain evidence that the sequence is due to recurrent causes. Even after a woman has had three successive abortions the chances of her continuing to term in the fourth pregnancy are 20%, whether anything is done for her or not. Again, even if by some specific therapy the recurrent causes of abortion could be removed, the treated patients would still be subject to the various casual factors which produce abortion. The author holds that the very best results that could be obtained from any specific therapy are about 83%. A cause can be discovered in about one-half of the recurrent aborters. The cause may be early lesions of the developing embryo, poor condition of the mother, chronic diseases and obstetrical trauma. The causes can be grouped under three heads: first, early lesions of the developing embryo; secondly, poor condition of the mother, chronic diseases, obstetric trauma; and thirdly, chronic nephritis, pregnancy toxæmia and accidental hæmorrhage. For the present progestin therapy is the best method of treatment, and the efficacy of vitamin *E* therapy in this group is open to criticism.

Granulosa Cell Tumours.

M. B. DOCKERTY AND W. C. MACCARTY (*American Journal of Obstetrics and Gynecology*, March, 1939), from the department of pathology of the Mayo Clinic, report a thirty-four pound granulosa cell tumour and give a review of the condition. Whilst 60% of the granulosa cell tumours occur after the menopause, 30% occur between puberty and the climacteric, and 5% to 10% occur before adolescence. The symptoms are those of an excess of œstrin, and consequently when these tumours are present in childhood they give rise to precocious menstruation with early sexual and somatic development. During maturity they produce either amenorrhœa alone or amenorrhœa followed by profuse and continuous menstruation. After the menopause they give rise to a periodic pseudomenstrual type of bleeding in 90% of all cases. They occur unilaterally and are usually solid. They are of a low-grade malignancy, and when they are cut the surface has a granular appearance of liver sausage. They produce hyperplasia of the endometrium, and a pathological report of proliferative endometrium with cysts in a case of periodic post-menopausal bleeding should demand exploratory laparotomy, even in the absence of a palpable pelvic tumour.

The Pathology of Uterine Fibromyomata during Pregnancy.

C. P. CHARLEWOOD (*The Journal of Obstetrics and Gynæcology of the British Empire*, December, 1938) has studied the effect of pregnancy on fibroids. In response to hormonic influence fibroids hypertrophy during pregnancy, outstripping their blood supply and degenerating. Exteriorization of interstitial fibroids tends to occur, and this is a further factor in the interference with the blood supply. The contracted uterus of the puerperium is also responsible for the reduction of the blood supply to fibroids. After the puerperium fibroids are sometimes found to be smaller than before pregnancy supervened. This is due to absorption of some of the necrosed tissue during involution of the degenerated fibroid.

Recent Advances in Radiotherapy.

J. H. MÜLLER (*Monatsschrift für Geburtshülfe und Gynäkologie*, April, 1939) reviews the progress in radiotherapy noted during 1938. Much has been done regarding the range of field of effective dosage in cases of cervical carcinoma. In this respect the author considers that the Paris technique is superior to that of Stockholm, though both fail to deal adequately with the periphery of the area under irradiation. The revised classification by Heymann of cases into several groups is discussed and the results from various international centres are summarized. The author stresses the importance of cystoscopic examination of the bladder before and after irradiation to control possible lesions. With the improvements in technique the treatment of carcinoma of the body of the uterus seems to be tending towards radium therapy rather than operation, and the published results are given. Promising results also have been obtained in the radium treatment of malignant tumours of the ovary, even when clinically inoperable.

The Treatment of Chronic Pruritus Vulvæ with Local Applications of Œstrogen.

ALBERT Y. KEVORKIAN (*The New England Journal of Medicine*, April 20, 1939) discusses a condition of chronic *pruritus vulvæ* associated with leucoplakic and kraurotic changes of the labial skin. He distinguishes this from the commoner type of pruritus, in which the skin changes are not a prominent feature and the causative factor or factors are apparent and remedial. The average age of occurrence of leucoplakic vulvitis is fifty-two years. The author likens the vulval skin to the "sexual skin" in the monkey and certain of the great apes. He considers that it is conceivable that the physiological atrophy of the vulva at the menopause may render the cutaneous area more liable to pathological changes incident to any damaging influence. Histologically there is a progressive disintegration of the elastic fibres in the corium and epithelial changes occur, resulting in a thickened rigid skin, which cracks easily, opening portals for subepithelial infection. Several factors may then irritate the nerve endings sufficiently to produce a sensation of itching. The constant trauma of scratching inevitably leads to excoriation of the skin and eventually to a chronic pathological state, with hyperplasia and sclerosis in variable proportions. Parenteral œstrogen therapy offers relief to only a few women so affected, and this may be due to the non-institution of treatment till the local changes have been well established. Also for local conditions œstrogen given parenterally, even in large amounts, is less efficacious than smaller amounts locally applied. Lyons and Templeton have shown that locally applied œstrogen is two hundred times as effective on the vagina of the rat as parenterally administered œstrogen. The method of treatment adopted was to clean thoroughly and to dry the vulval, epipubic and perineal skin. Œstradiol is dissolved in sesame oil in a concentration of 0·5 milligramme to 1·0 cubic centimetre. One cubic centimetre, which corresponds to 60,000 international units, is thoroughly massaged into the skin of the affected area every two to six days. After the pruritus is controlled smaller amounts in the form of a salve with a lanoline base are applied daily by the patient. The author cites four cases in which the œstrogen remedied both the subjective symptoms and objective signs of this type of *pruritus vulvæ*. He considers that the results obtained justify further investigations in selected cases.

Early Diagnosis of Cervical Carcinoma.

H. WESPI AND D. BRASCH (*Monatsschrift für Geburtshülfe und Gynäkologie*, April, 1939) present a detailed histological investigation of nine cases of early carcinoma of the cervix, five of which were diagnosed clinically by colposcopy. By means of diagrams the authors have correlated the clinical findings with the histological changes noted in sections from the cervix. They emphasize the prevalence of areas of atypical epithelium adjacent to the malignant zone, a point first noted by Hinselmann. In conclusion they stress

the value of both colposcopic examination of the cervix and the iodine test in the early diagnosis of cervical carcinoma, and consider that by such diagnostic measures a reduction in the present incidence and death rate can be expected.

Puerperal Sterilization.

F. L. ADAIR AND IRA BROWN (*American Journal of Obstetrics and Gynecology*, March, 1939) report the sterilization of 50 women within the first twenty-four hours after delivery. The authors are of the opinion that it is both a desirable and safe procedure in women who are neither actually nor potentially infected during labour. It eliminates the necessity of late sterilization, whereby the patient has to enter hospital and suffer a further period of invalidism; when this operation is performed under a local anæsthetic during the first twenty-four hours it appears to carry no risk. The authors are not in favour of doing it after twenty-four hours. The operation was performed in medical conditions such as mitral stenosis and chronic nephritis.

OBSTETRICS.

Uterine Inertia.

IN the Blair-Bell Memorial Lecture, T. N. A. Jeffcoate (*The Journal of Obstetrics and Gynæcology of the British Empire*, December, 1938) considered the factors controlling uterine action. Parturition is not a single isolated event, but is more properly considered as a climax of a process which begins with ovulation and ends with involution. The physical development of the uterus during pregnancy is of first importance to its behaviour during labour. It is for the most part governed by hormonal factors, promoting both increased vascularity and hypertrophy of the muscle and controlling its contractions, sensitivity and tone. Progesterone has an inhibitory, while œstrogens have an activating action. Although the amount of œstrogenic hormone in circulation increases as pregnancy advances, it is only immediately before the onset of labour that it becomes activated and free to exert its full biological effect. Then the œstrogenic hormone increases uterine sensitivity until any minor stimulus may be sufficient to produce the onset of labour. Delay in the dilatation of the cervix is usually associated with disordered uterine contractions. Œstrogenic principles acting on the uterine muscle increase its vascularity, metabolism, tone and sensitivity, and also produce hypertrophy of the muscle and coordination of the uterine contractions. In a carefully controlled clinical trial of œstrogenic hormone therapy in patients with uterine inertia who had not improved with ordinary methods of treatment, including sedatives, enemata and catheterization, the author had success in between 50% and 60% of cases. In the absence of a mechanical obstacle to delivery success was obtained in 74% of patients. The author also noticed a low incidence of difficulty in the third stage. No general or local reaction to injection was ever observed. The œstrogens never produce violent or spasmodic uterine contractions. They coordinate uterine action and also promote more powerful and regular contractions. The treatment is free from risk to either mother or child. The œstrogenic therapy produces increased contractions in most cases within two to three hours. The author further discusses the ætiology of inertia, stating that the *primipara* over thirty years of age is particularly prone to be affected. If uterine development is sufficiently good to allow the implantation and growth of the ovum, it is sufficient to ensure good contractions in labour. Over-distension of the uterus does not directly produce inertia. Mechanical factors are of great importance, though not by fatiguing the uterine muscle. Nervous mechanisms may be involved in the causation of inertia, such as reflexly from a full bladder or rectum, or from faulty stimulation of the cervix and vagina by the presenting part. Emotional factors cannot be disregarded. Summing up, the author states that morphine and other sedatives take first place in treatment. The use of forceps is sometimes essential, and Cæsarean section may be indicated, preferably under spinal or local anæsthesia, to avoid *post partum* hæmorrhage. Œstrogenic hormones should be used in the treatment of those patients in whom uterine action is not improved by sedatives and antispasmodics.

The Clinical Significance of Anatomical Variations in the Female Pelvis.

W. E. CALDWELL AND H. C. MOLOY (*The Transactions of the Edinburgh Obstetrical Society*, January-February, 1939) have devised a new and morphological classification of the female pelvis in view of the considerable variation which may exist in the architecture of pelves which would be regarded as normal from the standpoint of the conventional measurements. They describe four basic pelvic types, anthropoid, gynæcoid, platypelloid and android, each of which can be recognized with a fair degree of accuracy by clinical examination. Intermediate forms are also described. They state that the clinical recognition of an abnormal type justifies radiographic examination, without which it is not possible to gain an adequately detailed knowledge of the size and shape of the pelvic cavity; as a corollary they point out the value of routine radiography in multiparous women with an unfortunate obstetrical history. They show that some types of pelvis are more frequently than others associated with pelvic arrest of the fœtal head during labour, and that a knowledge of the pelvic type in such a case may afford guidance as to the best mechanism for delivery. For instance, arrest of the head in the posterior position in android or platypelloid types indicates manual rotation to the transverse position, which is maintained to a lower level before anterior rotation is performed; premature anterior rotation is likely to result in stillbirth. Anterior rotation in low occipito-posterior arrest in anthropoid pelves is also dangerous.

Pregnancy with Leuchæmia.

R. M. GRIER AND H. A. RICHTER (*American Journal of Obstetrics and Gynecology*, March, 1939) report a case of pregnancy with leuchæmia and review the literature. They come to the conclusion that as some of the patients with chronic leuchæmia live as long as six years, there is a distinct risk of the occurrence of pregnancy. Exacerbation of leuchæmia is the rule during pregnancy. In the acute condition the course is remarkably short and all women die either during pregnancy, in labour or in the puerperium. The authors found that the prognosis was good for the baby in the chronic cases after viability was reached, but in the acute type the prognosis was bad owing to the frequency of premature delivery. None of the babies showed evidence of leuchæmia. If pregnancy does occur, interference is not indicated, as it does not help the mother in either form, and in the acute form it shortens the mother's life. Premature induction of labour or Cæsarean section is justifiable when the pregnancy is near term to save the baby if the mother is going down hill.

Narcotic Asphyxia in the New-Born.

YANDELL HENDERSON, in an editorial in the *American Journal of Obstetrics and Gynecology* of March, 1939, reviews the position of narcosis in labour. Of all babies normally born of unnarcotized mothers, 98% breathe immediately, whereas of those born of narcotized mothers, from 30% to 60% exhibit a more or less prolonged period of apnœa. Although the majority are resuscitated, many never breathe, whilst others succumb within a few days to a persisting atelectasis and pneumonia. The narcotized baby is not only anoxic, but is primarily affected by toxins. All narcotics repress the respiratory centre of the fœtus more than that of the mother. Whereas the effect of the administration of morphine decreases after three or four hours, that of the barbiturates lasts three to four times longer. The editorial concludes by stating that the science of pharmacology affords no means by which child-birth can be made free from even the slightest discomfort or recollection by the mothers except at the cost of many dead or damaged babies.

British Medical Association News.

SCIENTIFIC.

THE OPHTHALMOLOGICAL SOCIETY OF AUSTRALIA (BRITISH MEDICAL ASSOCIATION).

THE first annual general meeting of the Ophthalmological Society of Australia (British Medical Association) was held at the Royal Australasian College of Surgeons on April 5 to 7, 1939. In the absence of Sir James Barrett, the President, who was not able to attend owing to illness, the chair was taken by DR. A. JAMES FLYNN, Vice-President.

Those present included Dr. Ida Mann (London), Dr. Aaron Green (San Francisco), one member from Queensland, eleven from New South Wales, two from Tasmania, four from South Australia, and thirty-six from Victoria.

His Excellency the Lieutenant Governor of Victoria, Sir Frederick Mann, K.C.M.G., regretted the absence of the President, Sir James Barrett, and expressed pleasure at the opportunity of opening the first general and scientific meeting. The occasion was one of great public importance, despite the comparative youth of the society. His Excellency only wished that its godparents had given it a name of less polysyllabic complexity. He believed that the society might exert a great influence for good in providing suitable channels for the free commerce in thought and experience which was essential to progress. Particularly in Australia was there needed a means of overcoming the isolation of seats of learning and of supplying the stimulus of free personal communication. His Excellency, referring to possible public activities of the society, mentioned the extensive public instruction given in regard to teeth and general hygiene, and asked if more knowledge of the hygiene of the eyes could not be spread among the public, so that much suffering and blindness might perhaps be prevented.

In conclusion, His Excellency congratulated the founders of the society and expressed his belief in its successful future for the public good.

President's Address.

In the absence of the President, Sir James Barrett, his presidential address on blindness, partial sightedness and the history of Braille type, was read by the Vice-President, Dr. A. James Flynn.

Sir James Barrett pointed out that the public health authorities were doing much good work in the prevention of disease by quarantine, notification *et cetera*, but they could not work efficiently in taking care of disabled persons unless they were supported by the whole profession. These general considerations applied particularly to the blind and partially sighted. The new organization might well make the prevention of blindness and the care of the partially sighted one of its most important activities.

Discussing classification of blindness, Sir James Barrett pointed out that at the Royal Victorian Institute for the Blind the British standards of blindness were adopted. When an attempt was made to assess the amount of blindness in Victoria, the only source of information regarding the general public was the last census (June, 1933); there was no information regarding partial sightedness. Only in Tasmania had the Government appreciated the inherent difficulty and made any attempt to obtain accurate information about the causes of blindness.

The necessary preliminary to the prevention of blindness was an accurate knowledge of its causes. Two diseases which had previously caused great havoc in Victoria were now happily rare—trachoma and *ophthalmia neonatorum*. It appeared, however, that myopia and *retinitis pigmentosa* were increasing in Victoria.

Partially sighted persons presented a difficult problem, as, although they were greatly handicapped, they could do useful work if properly trained. Their education had to be carried out largely by word of mouth and by large diagrams and pictures. When this was finished they could find employment in manual occupations which did not require a high degree of vision.

There were no means available for the proper education of the partially sighted in Victoria. The Royal Victorian Institute for the Blind could not accept these persons for instruction, as its accommodation was fully taxed in the instruction and care of the blind.

In describing the history of the Braille type Sir James Barrett stated that until the eighteenth century there had been no idea of education for the blind. The first school for the blind was opened in France in 1783, where handicrafts were taught. Before this there had been schools solely for the religious instruction of blind persons. But as education proceeded, attempts were made to invent a script which the blind could read. Louis Braille was born in 1809. He was the son of a harness maker and was blinded by an awl. His final system was produced in 1834. Great controversy occurred over the merits of the various systems, but an American commission finally decided in favour of the Braille script. Braille revolutionized the system of education of the blind. He destroyed the three ideas which had for so long hindered progress. He showed men (i) that religion should not be the sole education of the blind; (ii) that the blind and the seeing should not be educated together; (iii) that a script for the blind need not be such that the seeing could understand it.

Developmental Abnormalities of the Eye.

DR. IDA MANN (London) gave two illustrated lectures on "Some Developmental Abnormalities of the Eye and their Embryology".

Birth Injuries of the Eye.

DR. J. BRUCE HAMILTON (Hobart) discussed birth injuries to the eye. This paper was the subject of editorial comment in the issue of June 3, 1939.

The Influence of Acetylcholine on Ocular Tissues.

DR. E. R. TRETHEWIE (Melbourne) read a paper on the influence of acetylcholine on ocular tissues. Acetylcholine as a chemical transmitter and its pharmacological properties were described, and the effects of acetylcholine, "Doryl", "Mecholyl", eserine and prostigmin on the blood vessels, iris and ciliary body were enumerated. Dr. Trethewie discussed the pharmacological basis of the use of these parasympatho-mimetic drugs in various pathological conditions of the eye, such as glaucoma, presbyopia, myopia, retinal embolism, migraine and the amblyopias of tobacco, alcohol and vitamin deficiency.

Persistent and Progressive Exophthalmos in Relation to Graves's Disease.

DR. FRANK NIALL (Melbourne) discussed persistent and progressive exophthalmos in its relation to Graves's disease. His paper was concerned with that type of exophthalmos which has been termed "progressive" or "malignant" exophthalmos. He described the clinical characteristics and the course of the complaint.

Details of six illustrative cases were recorded. One patient had had a gross proptosis for thirty years. Five others had required operation; the Naffziger operation was performed by Dr. Frank Morgan on three patients, and enucleation of the eye was necessary in two other instances. Sections of tissue from the orbit at operation showed characteristic changes in every instance.

The relationship to Graves's disease was discussed, and Dr. Niall suggested that the exophthalmos, or at least the progressive type, was not one of the results of a disordered thyreoid function, but was a separate manifestation of a complex disease. He referred to the pathogenesis of the disease, and particularly to the experimental

production of exophthalmos by the injection into animals of thyreotropic hormone derived from the pituitary gland. The incidence and characteristics of exophthalmos in acromegaly bore some points of similarity to progressive exophthalmos.

Dr. Niall drew attention to the fact that pathological changes in the orbit in progressive exophthalmos had certain features in common with the changes that occurred in the thyreoid gland in lymphadenoid goitre and Riedel's thyreoiditis. Reasons were given for the view that the condition known as "inflammatory pseudotumour of the orbit" was identical with progressive exophthalmos, and some aspects of the diagnosis and treatment of this condition were included in the paper.

Orbital Tumours.

DR. G. BARHAM BLACK (Adelaide) reported three orbital tumours of interest. The first was in a female, aged fifty-one years, normal when first seen, who in six weeks had developed proptosis and limitation of movement in the right eye, with swelling in the temporal fossa. Operation revealed a carcinoma in the lateral wall of the orbit. The patient died of metastases within three months of the appearance of the tumour. The second patient, a girl of four years, had proptosis of the left eye, and deep X ray therapy was employed unsuccessfully. Papillœdema developed, and two months after the first examination the X ray appearances suggested possible bone erosion. At operation a myxosarcoma was removed from the deep lateral part of the orbit. Recovery was satisfactory. The third patient, a woman of forty-three years, had proptosis of the right eye, which had increased in the last six years, with poor central vision and enlargement of the optic foramen. Dr. Black described in detail the operation by which Dr. L. C. E. Lindon successfully removed what proved to be a glioma of the optic nerve. It is worthy of note that in both the first and third cases there was a hiatus in the lateral bony wall of the orbit that was not revealed by X rays.

Inflammatory Pseudotumours of the Orbit.

DR. W. J. LAURENCE DUNCAN (Melbourne) described inflammatory pseudotumours of the orbit as relatively rare. At the Victorian Eye and Ear Hospital during the last ten years he had been able to trace only three cases which he considered should be classified under this heading. In each instance the false tumour had on microscopic examination been proved to consist of a mass of chronic inflammatory tissue, and a thorough investigation had failed to reveal its ætiology. Dr. Duncan reviewed the literature and presented detailed reports of his three cases.

Lymphosarcoma of the Orbit.

DR. A. JAMES FLYNN (Sydney) reported an orbital tumour which ultimately proved to be a lymphosarcoma, but which was variously described by those who examined sections from it as a lymphoma, lymphosarcoma, and a pseudotumour with unusual lymphocytic development.

The Measurement of Proptosis.

DR. GEORGE A. BREW (Melbourne), in his paper on the measurement of proptosis, defined the subject of "ophthalmostatometry", a cumbersome word, which he preferred to use. He traced the history of the subject from the work of Cohn onwards, and discussed the merits and demerits of various devices produced from time to time for the measurement of proptosis. He presented a photographic method of his own, in which a profile picture of the affected eye was taken with the subject seated at a Ferree-Rand perimeter. The apparent distance from the corneal vertex to the lateral orbital margin, indicated by a flesh pencil marking, was compared with the markings of a millimetre scale included in the picture. With due attention to a rather rigid technique, an accuracy of half a millimetre was claimed, the procedure being advocated for research and laboratory cases. For details of the method the original paper should be consulted. It is amply illustrated and there is appended a brief but useful bibliography.

The Treatment of Bullous Keratitis.

DR. A. L. TOSTEVIN (Adelaide) reported some results of treatment of bullous keratitis. He said that some patients with this condition who presented themselves some time after symptoms commenced were very difficult to treat. The whole corneal epithelium peeled off, and cauterization and palliative measures failed to get it to stick back. After the patient had been several weeks in hospital it became necessary to try more heroic methods, and these were designed primarily to lower intraocular tension, and secondly to increase the vascular supply to the cornea. Four patients recovered after trephining only, but two others, whose condition was of long standing, needed a conjunctival flap afterwards before healing took place.

Histological Examination of the Eye.

In a discussion on the histological examination of the eye, Dr. R. A. Willis (Melbourne) recommended the histological study of ocular tissues by non-section methods. His paper was a plea for the value of the older non-section methods—teasing, stripping or maceration—in the histological study of normal or diseased tissues. He held that the application of modern staining methods to tissue preparations of the kind afforded a valuable means of study supplementary to the usual section techniques. In the present paper this was exemplified by photographs of preparations of the iris, lens epithelium, fœtal lens capsule, chorioid pigment cells, blood vessels and the pigmented epithelium of the retina; and it was suggested that the application of the methods used would prove of value in the study of other normal or abnormal tissues.

Modern "Celloidin" Technique.

DR. K. J. O'DAY (Melbourne) described modern "Celloidin" technique and showed how by modern methods, with the use of nitrocellulose of low viscosity, tissues might be embedded in "Celloidin" nearly as rapidly as in paraffin. Heat was used as an aid to penetration of the embedding medium. By means of a sliding microtome and small blocks, sections might be cut as thin as 4μ.

The Retina of Australian Reptiles and Mammals.

Dr. K. J. O'Day also read a paper on the retina of Australian reptiles and mammals. He said that a study of their visual cells suggested that the early reptiles, because of their strongly diurnal habits, discarded the rods which they inherited from the amphibians and fishes. Those families which later adopted nocturnal habits were able to change the function of their visual cells, which were anatomically cones, into that of rods. It was also probable that the transmutation had gone further and that the rods had resumed their original role as cones. The first step might be traced through Sphenodon, the Pygopodidæ and the Geckoes. The structures of the visual cells of the colubrid snakes and of *Ornithorhynchus* suggested the second step.

The structural details of the Pygopodidæ had not previously been reported. There was a marked difference between the retinæ of American marsupials, as recorded by Walls, and Australian marsupials, as recorded by the author.

Bilateral Neuroblastoma in Twins.

DR. W. J. L. DUNCAN (Melbourne) reported the occurrence of bilateral neuroblastoma in twins. The infants were first seen by an ophthalmologist when they were seven months old. There was bilateral buphthalmos, and vitreous hæmorrhages were present, so that it was impossible to obtain a clear view of the fundi.

DR. R. B. MAYNARD (Melbourne) described the pathological changes, which were typical of neuro-epithelioma, found by him on evisceration of one eye and later autopsy of one twin, and by Dr. R. A. Willis at autopsy of the

other twin. In the twin whose eye was eviscerated the cervical lymph glands became strongly involved, while in the other twin death was due to intracranial extension from hydrocephalus.

Suppression Fields in Strabismus.

DR. T. A'B. TRAVERS (Melbourne) demonstrated his method of investigating suppression fields in strabismus, and described some typical results.

Experimental Hæmorrhage into the Eyes of Rabbits.

DR. R. B. MAYNARD reported some results of experimental hæmorrhage into the eyes of rabbits. He said that (*a*) the fluid constituents of the blood appeared to be removed via the anterior chamber and the optic nerve route; (*b*) the corpuscles showed little change for one week, after which proof of their breakdown was afforded by a difference in morphology and the presence of hæmosiderin; (*c*) tissue reaction leading to macrophage production appeared first at the optic nerve head and later in the inner fibre layer of the retina.

Atypical Retinitis Pigmentosa.

DR. A. L. TOSTEVIN (Adelaide) showed a patient with atypical *retinitis pigmentosa*. There was an incomplete ring scotoma in the right field of vision and a complete ring scotoma with temporal field loss was present in the left. The corresponding areas of the fundi showed mottling and some slight retinal changes, with one or two spots of pigment. The patient was unaware of the field defect, and his corrected vision was $^6/_6$ in each eye. There was no history of night blindness or of *retinitis pigmentosa* in his family.

Corneal Transplantation.

DR. ALAN L. NORTH (Sydney), speaking of the operation of corneal transplantation, examined two types of operation, as represented by Castroviejo and Tudor Thomas respectively. He said that Castroviejo used a square graft, 4·5 millimetres in diameter, with shelving edges the same size as the excised leuchoma. Tudor Thomas employed a round graft, 4·3 millimetres in diameter, with shelving edges slightly smaller than the recipient's excised piece of cornea, which was 4·6 millimetres in diameter. Castroviejo excised the recipient's leuchoma before the donor's graft was taken, whereas Tudor Thomas excised the latter first and placed it in normal saline solution. The stitches were inserted in a somewhat similar way in each case, and crossed the cornea rather in the manner of a Maltese cross. Castroviejo used a continuous suture; Tudor Thomas two sutures, a vertical and a horizontal one. Decided vascularization of the cornea or an extensive dense leuchoma was considered unfavourable by Castroviejo, but not by Tudor Thomas. To avoid injury to the lens, Castroviejo used a stitch within the outlined leuchoma and exerted gentle traction, whilst Tudor Thomas pressed on the globe with forceps.

The film prepared by Castroviejo was shown after the reading of this paper.

Glioma of the Optic Disk.

DR. J. RINGLAND ANDERSON (Melbourne) read a paper written in conjunction with DR. E. O. MARKS (Brisbane) and DR. R. A. WILLIS (Melbourne) on glioma of the optic disk. It was pointed out that true glioma involving the disk was rare. The authors had found reports of four verified cases in the literature. The disk might also be affected by extensions of the endotheliomata from the dura, sarcoma from the chorioid, and apparently by sarcoma originating in its own tissues; and might also be involved in so-called "retinal glioma". The authors reported a new case of true glioma of the optic disk in a boy of eleven years. At the age of six the right eye was divergent, with failing vision, and a protruding mass partly covered the optic disk. Five years later this mass was larger and vascularized, and there were retinal hæmorrhages. Four months after excision the socket appeared healthy. Histologically the growth was an astrocytic glioma, presumably originating in the neuroglial elements of the retina at the edge of the disk. It involved part of the disk and neighbouring retina. It was thought that an increase in fibrillary tissue in the nerve close to the growth might represent diffuse extension, but was more probably secondary degeneration.

Cataract and Other Ophthalmic Operations.

DR. AARON GREEN (San Francisco), in his paper "Nearly Thirty Years' Experience with Cataract Operations: An Analysis of 3,000 Cases", stressed the value of the use of "Sodium amytal", two and a half grains, and a lotion of mercuric oxycyanide, 1 in 5,000, before operation. He described the use of his special lid retractor, T-shaped conjunctival forceps and cataract knife; and discussed the indications for and advantages of the intracapsular method, which should, however, not be used for patients under forty years of age. The use of the suction apparatus was not advised for patients under sixty, because the lens was gripped so firmly that there was great danger of injuring the ciliary body if the zonule was resistant.

In trephining for glaucoma he finds that a mechanical trephine means least risk of trauma. He described in detail his method of trephining and subsequent iridotomy. He uses a running suture to close the conjunctiva, and promotes drainage by raising the flap over the hole with forceps.

Dr. Green said that he had also obtained good results by trephining for keratoconus.

When the pupil is drawn up after a cataract operation, Dr. Green performs an optical iridectomy by means of a keratome incision from below; or if the pupil is drawn up too far for this, he passes a Zeigler needle into the eye in the horizontal meridian, attempting to make as big a hole in the iris as possible by drawing it from side to side.

For keratoplasty, instead of corneal sutures, he uses the conjunctival flap of Filatov. This is of corneal width, cut vertically upwards from the cornea, then turned downwards with the external surface against the graft, and sutured below. This has been found very satisfactory in his eighteen cases, as have grafts from the cadaver. The grafts are kept at a temperature of 8° F. for five days before use.

In the operation for petrygium a squint hook is passed under the belly of the growth and used to strip it up from its bed, the apex being left *in situ*. A double-armed suture is then passed through the apex and the hook is used to complete the stripping; then the suture is passed to the assistant to be held as a retractor, while the gelatinous tissue on the under-surface of the growth is dissected off with scissors.

Two vertical incisions, seven millimetres long, are then made with the scissors in the bulbar conjunctiva. The incisions are tangential to the limbus, one passing upwards from the site of the petrygium and the other downwards. From the upper incision a pocket is made upwards and outwards, in which the petrygium is buried by means of a suture. The point of conjunctiva made by the lower incision is drawn upwards to the upper incision and sutured there in order to cover the denuded area. It is better to bury the growth upwards, as the operative result is less conspicuous.

In the operation for ptosis the eyebrow is shaved. On the upper lid a strip of skin, three millimetres wide and three millimetres from the lid margin, is marked out with the knife and dissected up with scissors; the ends of the strip are left attached. A lid spatula is then passed under the strip, which is scrubbed with trichloracetic acid on a firm cotton wool mop, in order to remove the epithelium. More than one mop may be necessary. The excess acid is washed off with weak bicarbonate solution. From the ends of the strip pockets are dissected upwards with scissors a little further than the eyebrow, where small horizontal incisions are made on either side. The strip is then divided in the middle and a double-armed suture is passed through the free end of each piece. The

sutures are then passed up on their respective sides in the pockets and through the horizontal incisions. By this means the lid can be drawn up as much as desired. The sutures are then passed through the skin at the top of the pockets above the horizontal incisions and tied over pieces of rubber tubing. The wound in the lid left by the removal of the strip is closed by sutures. Should the result be insufficient, the operation can be repeated. If the epithelium of the strip is not completely removed there is danger of a sinus forming.

Iris prolapse after a cataract operation is treated by firm compression for twenty seconds of the prolapse with a firmly wound cotton wool mop, moistened with liquefied trichloracetic acid. The procedure is repeated every five days until the desired result is obtained, the excess acid being always washed off with bicarbonate lotion. The same method is used for prolapse of the iris from perforating injuries.

In cases of trachoma with entropion Dr. Green treats secondary infection of the lid by tarsectomy, which removes the site of the infection in the Meibomian glands. At the time of operation, as additional measures, the conjunctiva is treated with a copper sulphate stick; and as the lachrymal passages are usually obstructed, the lower canaliculus is slit and the canaliculus knife is passed down into the duct.

Ectropion is often best treated by transplantation of an oval piece of skin from the upper lid into a suitable prepared area made by a horizontal incision into the lower lid, as this gives a most satisfactory skin match.

For dacryocystitis the sac is washed out and filled with an ointment of ephedrine hydrochloride 1%, chinisol 1 in 20,000, merthio salicylate 1 in 1,000, with an oily base. The process is repeated daily until the inflammation has subsided. If the duct is not then patent, an attempt is made to probe it, and if there is an obstruction the lower canaliculus is slit up and the knife passed down into the duct. The sac is then filled with ointment daily for a few days. Extirpation of the sac is thus avoided in all but a few cases. It seems that the ointment reduces congestion and can percolate through a very small opening.

With corneal ulcers the sac is treated as for a dacryocystitis without obstruction. To be merely concerned with the conjunctiva and cornea in such cases is unsound. The results are often gratifying.

Contact Lens Work.

Dr. Ida Mann (London), in a brief review of contact lens work, described the early experiments and the principal methods now in use. She said that Zeiss produced a huge range of lenses ground to various scleral and corneal curves. The optical correction was formerly provided simply by the "water lens" between the glass and the cornea, but might now be ground on the outer surface according to prescription. Müller, of Weisbaden, fitted blown glasses by a process of trial and error. Müller-Welt, of Stuttgart, ground the required correction onto a glass blown into a mould. Dallos obtained a perfectly fitting lens by taking a mould of the eye or by fitting with type glasses of the commoner scleral forms and finally by grinding by hand. The required correction was then ground on the outer surface. This method was tedious, but might become less tedious as the number of type glasses was increased; and it made contact lenses possible for many people whose scleral curve was too irregular to allow them to tolerate the spherical Zeiss glasses. Dr. Mann classified the indications for contact lenses as follows:

A. Optical.

Asymmetrical ametropia—
- Keratoconus.
- Surface irregularities.

Symmetrical ametropia—
- High myopia.
- High hypermetropia.
- High astigmatism.
- Aphakia.

Anisometropia—
- Monocular aphakia.
- Monocular keratoconus.
- Curvature or axial anisometropia.

Albinism (and occasionally aniridia).

Corneal opacities.

Retinal amblyopia (as part of a telescopic combination).

B. Occupational.

Occupations in which glasses are not allowed (stage, films, air force *et cetera*).

Occupations in which glasses are a disadvantage (exposure to rain, steam, mist, heat; swimming and some other sports).

C. Cosmetic.

In certain cases where the psychological effect is of importance.

D. Therapeutic and operations.

Lagophthalmia from any cause.

To keep ointment *et cetera* in contact with the eye.

To hold corneal graft in place.

For recurrent erosion, marginal dystrophy, trachoma, trichiasis, pemphigus *et cetera*.

Congenital Cystic Eye.

Dr. Mann also read a report on a case of congenital cystic eye. A large tumour, which projected two and a half inches from the orbital rim, was removed from a two months old child. There was partial differentiation of retinal cells in the walls of the cyst, which is very similar to that described in 1906 by Treacher Collins and Johnson Taylor.

Obituary.

JOHN LAWRANCE McKELVEY.

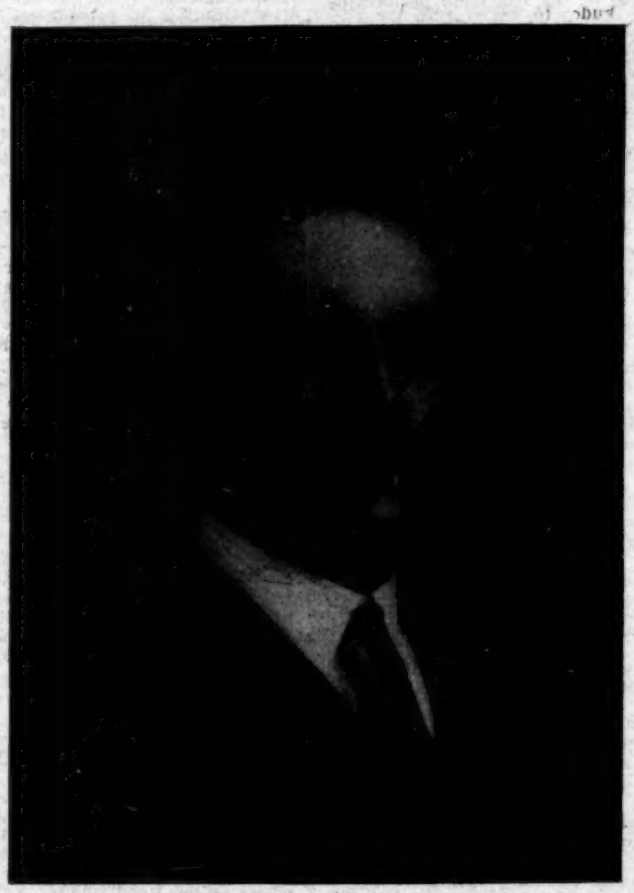
The death of Sir John Lawrance McKelvey, which was reported recently in these pages, was not unexpected, for he had been ill for a long time, and though his many friends in the medical profession were anxious to see him at work again, they realized that this was rather a forlorn hope. His passing has left a gap that will be hard to fill, not only in Sydney, where he had the respect and confidence of his colleagues, but in the wider sphere of Australian surgery, where he held a place of signal honour.

John McKelvey was born at Ravenswood, North Queensland, on February 9, 1881. His early education was undertaken at Townsville Grammar School, and from there he won an exhibition to the University of Sydney. He studied for one year in the Faculty of Arts and then began his medical course. He was a successful student and invariably had a high place in the examination lists. In 1905 he graduated and was appointed resident medical officer at the Royal Prince Alfred Hospital. He became a senior medical officer and was then appointed acting medical superintendent. In 1908 he applied for and obtained the position of medical superintendent at the Melbourne Hospital. In the following year he returned to Sydney as medical superintendent at the Royal Prince Alfred Hospital. He held this position until 1911, and on his resignation was appointed honorary assistant surgeon. Later he was appointed to the full staff. In 1913 he became honorary surgeon to Saint Vincent's Hospital, and at the time of his death was senior honorary surgeon at both institutions. He was for some years lecturer in clinical surgery at the Royal Prince Alfred Hospital and acted as examiner in clinical and operative surgery for the University of Sydney. He was honorary consulting surgeon for the Royal South Sydney Hospital and for the Canterbury District Memorial Hospital.

John McKelvey was a foundation Fellow of the Royal Australasian College of Surgeons; he took an interest in all aspects of its work and was a member of the council and of the committee for New South Wales. At the annual meeting in 1939 he was elected a vice-president. He was also a member of the New South Wales Post-Graduate Committee in Medicine and of the advisory committee of the Prince Henry Hospital. Though his contributions to medical journals were not numerous, they always revealed clarity of thought and reflected his wide clinical experience. To THE MEDICAL JOURNAL OF AUSTRALIA he contributed five papers, dealing chiefly with gastro-intestinal conditions. He contributed one article to *The Journal of the College of Surgeons of Australasia* on abnormalities of the hind end of the body, and one to the *Sydney University Medical Journal* on the application of embryology to surgery.

In August, 1937, he accepted the invitation of the Queensland Fellows of the Royal Australasian College of Surgeons to deliver their annual address. The title of the paper was "The Origin of the Gall-Bladder and Some of its Diseases"; this was not published.

In January, 1933, John McKelvey received the honour of knighthood from His Majesty the King, a recognition which was welcomed by his many friends. His chief interests outside his profession were horse racing, fishing and golf.



Dr. O. A. Diethelm writes:

John Lawrance McKelvey, whose death after a long illness took place at his home in Pott's Point on July 7, was a man of brilliant attainments, whose reputation as a surgeon had spread far and wide. As his condition was a hopeless one and there was no possibility of Sir John being sufficiently restored to health to carry on his good and charitable work, one could not help feeling that he was very mercifully called away, peacefully and quietly, when at the zenith of his fame. He was saved much suffering and anguish of mind, which must inevitably have ensued if he had lingered and realized to the full the hopeless outlook that loomed ahead for him. Sir John was ardently devoted to his work, and those who knew him well could realize what torture it would be to a man of his temperament and calibre to be forced to realize he was a hopeless and helpless invalid, deprived of his power of relieving human suffering and giving his fellow creatures the full benefit of his knowledge and surgical skill.

Early in his career at the university John McKelvey showed himself to be endowed with marked ability and possessed of a phenomenal memory. One of his most notable successes was being placed *proxime accessit* for the mathematical scholarship at the end of first year Arts to one of the most outstanding mathematicians who ever entered the University of Sydney—Professor Vonwiller, now professor of physics at that university. This feat was all the more remarkable when one considered the fact that Sir John had come from a comparatively small school at Ravenswood and had not had the advantages of preliminary training and education that were given to students at that time prepared in the leading Sydney schools. He had a brilliant medical career and as a student was recognized as being far above the ordinary and endowed with great natural ability and powers of observation. During the whole of his university career he was a resident of Saint John's College. He was a fellow of the council of that institution at the time of his death. No man ever left "John's" who was more loyal and attached to the college. Whenever he met one of his old associates from the college his face would light up and radiate happiness when recalling old incidents of past college days. He was gifted with an extraordinary memory and his mind was just a storehouse for almost everything of note that had occurred. Even more remarkable was his recollection of detail, to such an extent that when he related a long-ago college story one could not help but be astounded at the exactness and portrayal of each tiny incident, as fresh in his memory as if it had recently occurred. He loved every stone in "John's".

In the development of his work, which was to win him fame as a surgeon, Sir John was undoubtedly inspired by Sir Alexander MacCormick, and he quite definitely modelled his work and ideas on the example set him by the latter. Like Sir Alexander, too, Sir John earned his wide reputation by sheer natural ability and indefatigable work. Sir John was certainly one of the most brilliant surgeons that the Sydney school has ever produced. He was not only acknowledged as a leader of his profession, but he had the unique combination of all the highest attributes and qualifications needed for the perfect surgeon, namely, knowledge, natural ability, surgical technique, excellent and sound diagnosis arrived at without hesitation, and wonderful judgement, all developed to such an extent that it could be fairly said that he would compare most favourably with any surgeon in any part of the world. His knowledge, not only of his work but of general subjects, for he was a voracious reader, was astounding. With all these attributes no man was ever possessed of such humility, made so little fuss, or talked less of his work. He was a man without ostentation, and he detested show, being really shy and reserved. A very staunch friend, too, was John McKelvey. Moreover, he had a beautiful and simple nature, and one had only to

see him with children to appreciate the real man. It was a great grief to both his wife and himself when they lost their only child—a son—in early babyhood. John McKelvey will be sorely missed. His friends will never forget him nor fail to appreciate their own good fortune in having been privileged to know such a character. His colleagues, especially the younger graduates, will always remember him with gratitude and affection for his advice and help, which were ever available to them. Perhaps, however, he will be most missed by the recipients of his quiet and unostentatious charity. If ever a man worked without thought of gain with the one ideal before him of "doing his job well" and giving the sick poor the full benefit of his skill and knowledge, that man was John McKelvey. I have never known a professional man, and especially so gifted a man who could easily command the highest fees, less mercenary, who thought less of commercial gain and even the kudos to be attained through some very complicated and spectacular surgical procedure. Once the work was over, he had very few words to waste. His charity was immense and unassuming, and the extent of it in New South Wales, especially Sydney, can be gauged by the fact that over 2,000 people, comprising all sections of the community, went to Saint Mary's Cathedral to be present at the last obsequies as a mark of respect, not only to a great surgeon but a man full of sympathy and charity. Sir John will be mourned and very sadly missed by the sick poor of Sydney.

A great loss will be sustained by the clinical schools and teaching hospitals. They will miss this able surgeon and teacher of such forceful character. The influence which his example and precept had upon former young graduates of the medical school of the University of Sydney will now be lost to many young students coming along. Those of us who knew him well, and his worth, realize how difficult it will be to replace him. It is a tragedy that such a remarkable and brilliant man should be taken at the comparatively early age of fifty-seven years. Outside his profession, which was really his life, his great interests were racing, fishing, golf and playing the role of *raconteur* amongst his friends. He had a most remarkable sense of humour and his fund of anecdotes was inexhaustible. Racing was his main hobby, and along with a profound knowledge of breeding and pedigrees he was particularly versed in everything pertaining to the Australian turf. One of his lifelong ambitions was attained when he was elected unopposed to the Australian Jockey Club committee, a member of which he still was at the time of his death.

Sydney is going to miss him very much. A wonderful personality, a remarkable character, a man full of charity and humility, a most loyal and sincere friend, we can ill afford to lose such a man from our midst. We feel certain that he has surely reaped the reward that he so truly deserves for all his good deeds in this life, especially all his charity to the suffering poor. These deeds were characterized throughout the whole of his life by two of his most outstanding qualities, lack of ostentation and absolute sincerity.

Dr. S. A. Smith writes:

The death of John McKelvey was indeed untimely, as he was at the height of his powers when fatal illness overtook him. Special qualities of mind shown from the earliest stages of his medical career; devotion to his art nurtured industriously in a long apprenticeship; knowledge of his science founded on a clear perception of fundamental truths which grew always from an unflagging desire for knowledge and judgement matured from a wide experience and in many emergencies had brought him to a foremost position in surgery in Australia. He had carried on the tradition founded by MacCormick, his master in his formative years and always his model.

In his early professional life in Sydney and Melbourne and in his earliest academic contact as a member of the staff of the department of anatomy, the very incisive quality of his mind at once showed itself. This impressed itself strongly on his colleagues, and on no one more than Professor J. T. Wilson, whose influence on McKelvey was profound. That great teacher's insistence on clearness and scrupulous honesty of thought was felt by everyone who came within the radius of his influence and it found a very receptive disciple in McKelvey and materially encouraged the natural bent of his mind. When the honour of knighthood was conferred upon him, in answering the congratulations of his friends, McKelvey testified to the debt he owed Wilson and MacCormick. The latter he came to resemble in dexterity, decision and judgement, and also in his economy of words and abhorrence of the theatrical.

Combined with his brilliant surgical gifts, seen at their best in cases of difficulty and grave emergency, was a great generosity. Those who were closely associated with him in his work can remember countless examples of consideration for those who were in need and of help that was always enhanced by the fact that it was given readily and without hesitation.

Outside his profession McKelvey had many attractive qualities. A love of children, a lively sense of humour, a phenomenal memory and a wide range of interests made him a delightful companion, and his loyalty to friend and country was one of his most valued attributes.

His early death means a great loss, not only to his friends but to surgery in Australia.

Sir Alan Newton writes:

When I heard, with great sorrow, of the death of Sir John McKelvey, my thoughts immediately went back, through more than thirty years, to the time when he was appointed to be medical superintendent of the Melbourne Hospital and I was a medical student within its walls. Our first meeting was dramatic. I was walking past his consulting room on the day on which he began his duties when an energetic figure dashed out of the door, seized me by the arm and dragged me inside to look at an interesting clinical case. It was at once obvious to me that a new order had arisen—a medical superintendent who radiated energy and enthusiasm and who was eager to help students in their work. He soon became a familiar sight at the hospital, going rapidly from one task to another, always with a text-book of anatomy wedged under one arm so that he could study it if he had a spare moment. It was apparent to all of us that here was a man who was determined to fit himself for a leading place in his profession. How well he succeeded is now common knowledge. He returned to his native city of Sydney, was appointed to the surgical staffs of the Royal Prince Alfred and Saint Vincent's Hospitals and was soon recognized as one of the most skilful surgeons in this country.

It was my good fortune to be closely associated with him again, towards the end of his life, when he was elected to the council of the Royal Australasian College of Surgeons and became a member of its board of censors. As an examiner on the board, his amazing clinical knowledge continually aroused the admiration of his colleagues. There seemed to be no condition, however unusual, with which he was not familiar; and when it was necessary, for the purpose of giving final distinction or administering final extinction to some candidate, to ask an awkward question, McKelvey was always ready with an appropriate poser. His work as a member of the council was invaluable, and early this year he was elected a vice-president in recognition of his services to surgery in Australia and to his college.

It is tragic that he should have been stricken by his fatal illness at a time when his powers were at their zenith. Those of us who knew him will cherish the memory of a man of singular wit and personal charm and can take comfort from the knowledge that his prowess as a surgeon will ever be an inspiration to his successors.

CONSTANTINE MICHAEL KRIZOS.

We regret to announce the death of Dr. Constantine Michael Krizos, which occurred on August 21, 1939, at Auburn, Victoria.

Naval, Military and Air Force.

APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Numbers 51 and 52, of August 10 and 11, 1939.

AUSTRALIAN MILITARY FORCES.

First Military District.

Australian Army Medical Corps.

To be Major—Captain C. D. Gillies, 26th June, 1939. *To be Captain (provisionally) supernumerary to establishment pending absorption*—Alexander Inglis, 15th June, 1939.

Second Military District.

Australian Army Medical Corps.

To be Captains (provisionally) supernumerary to establishment pending absorption—Henry Thomas Osmond, 1st July, 1939; Winifred Lambert Fowles, 2nd July, 1939; Archibald Keverall McIntyre, 3rd July, 1939; Stephen Norman Vanstone, 4th July, 1939, and Arthur Ross Robinson, 12th July, 1939. The following officers are brought on the authorized establishment: Captain (provisionally) E. W. Ferguson, 31st May, 1939; Captains (provisionally) A. A. Hazelton, C. H. Selby and E. L. Davis, 1st May, 1939; Captains (provisionally) A. M. Macintosh, M. M. Brown, C. M. Burns, J. M. Mack, J. Davis, G. S. Flynn, P. A. Tomlinson, W. K. Myers, I. F. Vickery, V. G. Bulteau, R. B. W. Pilcher and R. J. Humphery, 1st July, 1939. The provisional appointments of Captains A. F. Hobson, D. S. Maxwell, A. D. Frost, P. Gilbert and W. A. H. Smith are confirmed. Captain P. J. Kenny is seconded for a period of two years from 1st April, 1939. Captain B. T. Lovell ceases to be seconded and is transferred to the Reserve of Officers (A.A.M.C.), 1st July, 1939. Captains C. J. McCaffrey and L. B. Diamond are transferred to the Reserve of Officers (A.A.M.C.), 1st July, 1939, and 1st August, 1939, respectively.

Australian Army Medical Corps Reserve.

To be Honorary Lieutenant—Reginald Percy Lane, 6th July, 1939.

Third Military District.

Third Division: Staff.

Captain W. W. Lempriere, Australian Army Medical Corps, is appointed Deputy Assistant Director of Medical Services, Divisional Headquarters, 14th June, 1939.

Australian Army Medical Corps.

To be Captains (provisionally) supernumerary to establishment pending absorption.—Inglis Hall Cowling, 8th June, 1939, and James Russell Goding, 4th July, 1939; Honorary Captains J. B. Devine and A. J. Nathan are appointed from the Reserve of Officers (A.A.M.C.) and to be Captains (provisionally), 10th July, 1939, and 1st August, 1939, respectively. The provisional appointment of Captain J. V. Ashburner is confirmed.

Australian Army Medical Corps Reserve.

To be Honorary Captains—Walter Edward Williams, Robert Munro, Geoffrey George Holstein Murdoch and Reginald Bishop Perrins, 20th June, 1939; Ronald Walter Bradbury, 22nd June, 1939; Noel Murdoch, 23rd June, 1939; Frank John Audas Grant, George Menzies Dallimore and Henry Thomas Chapman, 29th June, 1939; John Francis Williams, 5th July, 1939; Geoffrey Egerton Hill and Eric Evan Price, 6th July, 1939; Kevin Brennan, 11th July, 1939; and Douglas George Renton, 17th July, 1939. *To be Honorary Lieutenant*—Cuthbert Henry Kerr Douglas, 13th July, 1939.

Fourth Military District.

Australian Army Medical Corps.

Captain (provisionally) A. H. White is transferred to the Reserve of Officers (A.A.M.C.) and to be Honorary Captain, 25th July, 1939.

Australian Army Medical Corps Reserve.

To be Honorary Captain—Gilbert Edgar Jose, 4th July, 1939. *To be Honorary Lieutenants*—Frederick Harry Justus Fischer, 20th March, 1939, and Desmond Montague Willington Sands, 15th June, 1939.

Captain H. C. D. Taunton is placed upon the Retired List with permission to retain his rank and wear the prescribed uniform.

Fifth Military District.

Australian Army Medical Corps.

To be Majors—Captains H. Stubbe and E. D. T. Smith, 28th June, 1939. Lieutenant-Colonel D. S. Mackenzie, D.S.O., is transferred from the Unattached List, with pay and allowances of Captain, 6th July, 1939.

Sixth Military District.

Australian Army Medical Corps.

Captain (provisionally) M. M. Brown is transferred from the Australian Army Medical Corps, 2nd Military District, 1st July, 1939; Major R. M. W. Webster, M.C., is brought on the authorized establishment of Majors, 26th June, 1939; Captains (provisionally) J. C. Fulton and R. A. Lewis are brought on the authorized establishment, 26th June, 1939.

Australian Army Medical Corps Reserve.

To be Honorary Captain—Ian Wellesley Holt, 11th July, 1939. *To be Honorary Lieutenant*—Harold Austin Kershaw, 22nd June, 1939.

PERMANENT AIR FORCE.

Medical Branch.

Extension of Short Service Commission.—Flight Lieutenant T. C. Anthony, to 1st March, 1943.

Correspondence.

VENEREAL DISEASE AND WAR.

SIR: In the twenty-fourth annual report of the British Social Hygiene Council it is stated that during the Great War approximately 400,000 men were treated for venereal disease and on the average were withdrawn from military service for a period of five or six weeks. Many details relating to this problem will be found in three publications of mine, namely, "The Australian Army Medical Corps in Egypt", "A Vision of the Possible" and "The Y.M.C.A. in Egypt".

If war breaks out again will the same thing happen and are we as a profession foreseeing the risk and taking the necessary educational action?

I have stated that it is unlikely that the Fifth Army would have been defeated in March, 1918, if venereal disease had been under control. If the venereal disease cases had not existed the man power would have been sufficient to stem the rush. It may be that there were many venereal disease cases on the German side, but even if there were it would not affect a delayed action on our part.

Yours, etc.,

JAMES W. BARRETT.

103-105, Collins Street,
Melbourne, C.1,
August 17, 1939.

LOCAL ANÆSTHESIA IN TONSILLECTOMY.

SIR: Dr. Orton's statement that the use of local anæsthesia for tonsillectomy increased the risk of pulmonary abscess prompts one to ask why this should be so.

Increasing familiarity with the technique of local anæsthesia, combined with adequate premedication for the removal of tonsils, has impressed me as to its being in almost every way superior to general anæsthesia; but my series is comparatively small. So that it is of interest to me why the use of local anæsthesia should subject the patient to greater risk of lung abscess.

Was the increased incidence of reactionary hæmorrhage due to the use of a solution too strong in adrenaline?

Yours, etc.,

J. A. PARKES.

Leichhardt,
New South Wales,
August 10, 1939.

Proceedings of the Australian Medical Boards.

SOUTH AUSTRALIA.

THE undermentioned have been registered, pursuant to the provisions of the *Medical Practitioners Act*, 1919 *to* 1935, of South Australia, as duly qualified medical practitioners:

Blofeld-Moody, Arthur John, L.M.S.S.A. (London), 1925, M.R.C.S. (England), L.R.C.P. (London), 1925, Adelaide.

Tomlinson, William Frederick, M.B., B.S., 1939 (Univ. Adelaide), Children's Hospital, North Adelaide.

North, William Ian, M.B., B.S., 1939 (Univ. Adelaide), Adelaide Hospital, Adelaide.

Lower, Oswald Bertram, M.B., B.S., 1939 (Univ. Adelaide), Adelaide Hospital, Adelaide.

Wilkinson, Robert Stuart, M.B., B.S., 1939 (Univ. Adelaide), Adelaide Hospital, Adelaide.

Helman, Carl, M.D., 1936 (Milan), 63, Lefevre Terrace, North Adelaide.

QUEENSLAND.

THE undermentioned have been registered, pursuant to the provisions of *The Medical Acts*, 1925 *to* 1935, of Queensland, as duly qualified medical practitioners:

Bilton, John Herbert, M.B., B.S., 1939 (Univ. Sydney), Brisbane.

Coates-Earl, Agnes Elizabeth, M.B., 1939 (Univ. Sydney), Brisbane.

Coppa, Mario, M.D., 1938 (Milan), Brisbane.

Horovitz, Wilhelm, M.D., 1924 (Palermo), D.T.M. and H., R.C.P. and S. (London and England), 1936, Brisbane.

Kinsbrunner, Paul, M.D., 1935 (Bologna), Brisbane.

Kinsbrunner, Samson Siegfried, M.D., 1932 (Florence), Brisbane.

Notice.

THE Institution of Engineers, Australia, Melbourne Division, invites any interested members of the British Medical Association to attend a series of lectures on "Electronics". The following programme has been arranged:

September 20 and 27, October 4 and 11: "The Basic Physics Underlying Electronic Phenomena", Professor Laby, University of Melbourne; Associate Professor Martin, University of Melbourne.

October 18: "Design of Emission Valves", Dr. Healey, A.W. Valve Company, Sydney.

November 1: "Thermionics and X Ray Equipment", Dr. Eddy, Commonwealth X-Ray Centre.

November 8: "Gaseous Discharge Illumination", Mr. F. Nichols, M.Sc. (Council for Scientific and Industrial Research, Information Section).

November 15: "Cathode Ray Oscillographs", Mr. J. H. T. Fisher, Postmaster-General's Research Department.

All the lectures will be delivered in the lecture theatre of the Engineering School, University of Melbourne. A nominal charge of 7s. 6d. will be made for the series. Individual lectures may be attended at a charge of 1s. 6d. per lecture.

All applications for tickets should reach the Honorary Secretary, the Institution of Engineers, Australia, Melbourne Division, Kelvin Hall, 55, Collins Place, by September 15.

Books Received.

CÆSAREAN SECTION: LOWER SEGMENT OPERATION, by C. McI. Marshall, F.R.C.S.; 1939. London: Simpkin Marshall; Bristol: John Wright and Sons Limited. Medium 8vo, pp. 236, with illustrations. Price: 21s. net.

PHYSICS FOR MEDICAL STUDENTS: A SUPPLEMENTARY TEXT BOOK, by J. S. Rogers, B.A., M.Sc., F.Inst.P., with a foreword by T. H. Laby, F.R.S.; Second Edition, revised and enlarged; 1939. Melbourne: Melbourne University Press, in association with Oxford University Press. Demy 8vo, pp. 318, with illustrations. Price: 12s. 6d. net.

SPORT, PHYSICAL TRAINING AND WOMANHOOD, by S. K. Westerman, M.D., L.R.C.S., L.R.C.P., L.R.F.P.S., with a foreword by Sir Kaye Le Fleming, M.A., M.D.; 1939. London: Baillière, Tindall and Cox. Demy 8vo, pp. 237, with illustrations. Price: 12s. 6d. net.

TREATMENT OF SOME COMMON DISEASES (MEDICAL AND SURGICAL), by Various Authors, edited by T. Rowland Hill, M.D., M.R.C.P.; 1939. Edinburgh: E. and S. Livingstone. Demy 8vo, pp. 412, with illustrations. Price: 15s. net.

TEXTBOOK OF MEDICAL TREATMENT, edited by D. M. Dunlop, B.A., M.D., F.R.C.P., L. S. P. Davidson, B.A., M.D., F.R.C.P., M.R.C.P., and J. W. McNee, D.S.O., D.Sc., M.D., F.R.C.P., with a foreword by A. J. Clark, B.A., M.D., D.P.H., F.R.C.P., F.R.S.; 1939. Edinburgh: E. and S. Livingstone. Demy 8vo, pp. 1147. Price: 25s. net.

INFECTIONS OF THE HAND, by L. R. Fifield, F.R.C.S.; Second Edition, by P. Clarkson, F.R.C.S.; 1939. London: H. K. Lewis and Company Limited. Crown 8vo, pp. 180, with 57 illustrations, including 8 plates. Price: 9s. net.

SLIMMING FOR THE MILLION. THE NEW TREATMENT OF OBESITY: A PRACTICAL GUIDE FOR PATIENT AND PHYSICIAN, by E. Chesser; 1939. London: Rich and Cowan Limited. Crown 8vo, pp. 119. Price: 3s. 6d. net.

WHITE SETTLERS IN THE TROPICS, by A. G. Price, with additional notes by R. G. Stone; 1939. New York: American Geographical Society. Super royal 8vo, pp. 324, with illustrations. Price: $4.00 net.

THE TISSUES OF THE BODY: AN INTRODUCTION TO THE STUDY OF ANATOMY, by W. E. Le Gros Clark, F.R.S.; 1939. Oxford: The Clarendon Press. Super royal 8vo, pp. 383, with illustrations. Australian Price: 25s. net.

A HISTORY OF TROPICAL MEDICINE, BASED ON THE FITZPATRICK LECTURES DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS OF LONDON, 1937-1938, by H. H. Scott, C.M.G., F.R.C.P., D.P.H., D.T.M. and H., F.R.S.E.; in two volumes; 1939. London: Edward Arnold and Company. Medium 8vo, pp. 1184. Price: 50s. net.

J. F. SUTHERLAND'S FIRST AID TO THE INJURED AND SICK, edited by H. Sutherland, M.D.; Forty-First Edition; 1939. Edinburgh: E. and E. Livingstone. Demy 32mo, pp. 72, with illustrations. Price: 6d. net.

TECHNIQUE OF ANALYTICAL PSYCHOTHERAPY, by W. Stekel, translated by E. and C. Paul; 1939. London: John Lane, The Bodley Head. Demy 8vo, pp. 425. Price: 21s. net.

ACTA CONVENTUS TERTII DE TROPICIS ATQUE MALARIÆ MORBIS. PART I: ACTA CONVENTUS TERTII DE TROPICUS MORBIS; 1938. Amsterdam: Societas Neerlandica Medicinæ Tropicæ. Royal 8vo, pp. 720, with illustrations.

ACTA CONVENTUS TERTII DE TROPICIS ATQUE MALARIÆ MORBIS. PART II: ACTA CONVENTUS TERTII DE MALARIÆ MORBIS; 1938. Amsterdam: Societas Neerlandica Medicinæ Tropicæ. Royal 8vo, pp. 601, with illustrations.

FOUNDATIONS: THE BUILDING OF THE MAN, by F. R. Kerr, D.S.O., M.D.; 1939. Melbourne: Robertson and Mullens Limited. Crown 8vo, pp. 34. Price: 1s. 6d. net.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Lockley, Ronald Paull, M.B., B.S., 1939 (Univ. Sydney), Sydney Hospital, Sydney.

Puddicombe, Geoffrey Henry, M.B., B.S., 1938 (Univ. Sydney), c.o. Dr. R. G. Weaver, Junee.

The undermentioned has applied for election as a member of the Victorian Branch of the British Medical Association:

Adrian, Joseph, M.D., 1929 (Bologna), Murrayville.

The undermentioned have been elected members of the Victorian Branch of the British Medical Association:

Appleby, Harold Henry, M.B., B.S., 1925 (Univ. Adelaide), F.R.F.P.S., 1930 (Glasgow), D.G.O., 36, Brighton Road, St. Kilda, S.2.

Thompson, Godfrey Howitt, M.B., B.S., 1936 (Univ. Melbourne), Women's Hospital, Carlton, N.3.

Marshall, Samuel Simon, M.D., 1937 (Rome), 725, Rathdown Street, Carlton, N.4.

Strauss, Maurice, M.D., 1936 (Padua), 223, Elgin Street, Carlton, N.3.

The undermentioned has applied for election as a member of the Queensland Branch of the British Medical Association:

Overstead, John Edward, L.R.C.P., L.R.C.S. (Edinburgh), L.R.F.P.S. (Glasgow), 1922, Cooktown, Queensland.

Diary for the Month.

SEPT. 5.—New South Wales Branch, B.M.A.: Organization and Science Committee.
SEPT. 6.—Victorian Branch, B.M.A.: Branch.
SEPT. 6.—Western Australian Branch, B.M.A.: Council.
SEPT. 7.—South Australian Branch, B.M.A.: Council.
SEPT. 8.—Queensland Branch, B.M.A.: Council.
SEPT. 12.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
SEPT. 19.—New South Wales Branch, B.M.A.: Ethics Committee.
SEPT. 20.—Western Australian Branch, B.M.A.: Branch.
SEPT. 21.—New South Wales Branch, B.M.A.: Clinical Meeting.
SEPT. 22.—Queensland Branch, B.M.A.: Council.
SEPT. 26.—New South Wales Branch, B.M.A.: Medical Politics Committee.
SEPT. 27.—Victorian Branch, B.M.A.: Council.
SEPT. 28.—New South Wales Branch, B.M.A.: Branch.
SEPT. 28.—South Australian Branch, B.M.A.: Branch.
SEPT. 29.—New South Wales Branch, B.M.A.: Annual Meeting of Delegates.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser", pages xviii-xx.

THE EASTERN SUBURBS HOSPITAL, WAVERLEY, NEW SOUTH WALES: Honorary Officers.

THE OTAGO HOSPITAL BOARD, DUNEDIN, NEW ZEALAND: Radio-Therapist.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCHES.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company Limited. Phœnix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association, Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17.	Brisbane Associate Friendly Societies' Medical Institute. Proserpine District Hospital. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.
SOUTH AUSTRALIAN: Secretary, 178, North Terrace, Adelaide.	All Lodge appointments in South Australia. All Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, 205, Saint George's Terrace, Perth.	Wiluna Hospital. All Contract Practice Appointments in Western Australia.

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